

ANALYSIS OF THE ROMANIAN HEALTH SYSTEM FROM THE PERSPECTIVE OF THE NUMBER OF HOSPITALS

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Abstract: *The paper presents aspects about the indicators related to the health system in Romania. The indicators considered were: the number of hospitals by type of ownership (public and private) and by development regions of Romania, time evolution (for period 1990-2021) followed by the detailed analysis on the year 2021 of the healthcare staff, represented by the number of physicians (dentists excluded), and of the resident population at January 1st 2021. The data used for the analysis was obtained from the National Institute of Statistics. From the results of the research, it is worth noting the division into three large categories of areas according to the number of hospitals, respectively: the developed area, the partly developed area and the undeveloped area.*

Key words: *hospitals, regions of Romania, Romanian Health System.*

1. Introduction

Romania, like other developing EU countries, has many areas related to health that still need to be improved (Todor et al., 2021). A recent study shows that the evolution and performance of health systems are technology and digitally dependent ideals (Todor et al., 2022). However, in order to be able to implement the technological part and develop the system, infrastructure is needed in the first phase. And the infrastructure refers to the number of hospitals and the proximity to the patient. At the same time, in the case of Romania, health policies and, therefore, the quality and quantity of medical services have registered major changes (Cigu and Cigu, 2022). There are other studies that have focused on a certain field of medicine and that have showed that there is a shortage of hospitals in Romania. According to one of the research studies, “in the country, there are only four intervention centres involved in the Acute Myocardial Infarction program for localities with a population of 2,500,000 people. Only one of

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them, the Institute of Cardiology, is public, the other three are private centres. New public centres should be built involving prestigious specialists in the field.” (Simionescu, 2019).

Starting from these data, the present study aimed to make an analysis of the health system in Romania by assessing the number of hospitals, which will highlight the major deficiencies of the health system in the country. Comparing the data on the number of hospitals per population and per number of Physicians, the strong need to pay attention to this extremely important and vital system will be demonstrated, in a clear way.

2. Methodology

This study uses official information from the Tempo database of the National Institute of Statistics. A series of indicators are considered:

- The number of hospitals in Romania in the period 1990-2021, by type of ownership;
- The number of hospitals in Romania by type of ownership and counties for the year 2021;
- The number of hospitals by development regions of Romania for the year 2021;
- The number of physicians (dentists excluded) by development regions of Romania for the year 2021;
- The number of resident persons on January 1, for the year 2021, by development regions of the country.

According to the specifications mentioned by the National Institute of Statistics, the following limitations of the terms are mentioned:

- ❖ **Hospitals** – are “health care units for the public use (public, public with private departments or private), with beds, having legal status, providing medical services to in-patient or outpatient persons in order to ensure health status of population. According to the health reform law, they offer preventive, curative, recovery and/or palliative medical services. The organizational structure of a hospital may include, as appropriate: sections, laboratories, diagnostic services and treatment services, departments, technical, economics or administrative offices, pre-hospitalization assistance and emergency transportation, emergency arrivals units. The hospital structure may include the following services: specialized ambulatory services, one day hospitalization, home care and paraclinical ambulatory services. Hospitals are required to operate the research and medical education activity (RME) for the physicians, nurses and other categories of personnel” (Tempo, Sanitary units, by category of units, ownerships, development regions and counties, 2023).
- ❖ **Healthcare staff** – *Physicians* “examine, diagnose, treat and prevent diseases, infections, injuries and other human physical and mental impairments, applying the principles and procedures of modern medicine. Physicians plan, supervise and assess the implementation of care and treatment plans by other health care services providers, coordinate the medical training and research activities.
 - In Romania the *dentist profession* is exercised by natural persons holding an

official qualification in dentistry, members of the College of Dentists of Romania. Monitoring and controlling the exercise of the dentist profession is done by the College of Dentists of Romania and the Ministry of Public Health” (Tempo, Healthcare staff, by categories, development regions and counties, 2023).

- ❖ **Resident population** – “usually resident population represents all persons of Romanian nationality, foreign or stateless who have their usual residence in Romania” (Tempo, Usually resident population at January 1st 2021, 2023).

All these statistical data are presented in the following analysis, using tables and graphic representations made by the authors to enhance understanding and facilitate follow-up and evaluation.

3. Results and discussion

Table 1 shows the evolution of the number of hospitals in Romania over time, for the total number and for the types of ownership (public and private).

Table 1
The evolution of the number of hospitals in Romania in the period 1990-2021, by types of ownership

Nr. Crt.	Year	Hospital (total)	Public property	Private property
1	1990	423	423	0
2	1991	427	427	0
3	1992	430	430	0
4	1993	433	433	0
5	1994	415	415	0
6	1995	412	412	0
7	1996	413	413	0
8	1997	418	416	0
9	1998	416	414	2
10	1999	428	425	3
11	2000	442	439	3
12	2001	446	442	4
13	2002	447	442	5
14	2003	427	422	5
15	2004	425	416	9
16	2005	433	422	11
17	2006	436	419	17
18	2007	447	425	22
19	2008	458	428	30

Nr. Crt.	Year	Hospital (total)	Public property	Private property
20	2009	474	431	43
21	2010	503	428	75
22	2011	464	367	97
23	2012	473	364	109
24	2013	499	365	134
25	2014	527	366	161
26	2015	554	367	187
27	2016	567	366	201
28	2017	576	367	209
29	2018	515	368	147
30	2019	523	368	155
31	2020	527	368	159
32	2021	535	367	168

Source: Made by the authors based on data provided by the National Institute of Statistics <http://statistici.insse.ro/> (accessed on April 2, 2023)

Overall, from the evolution of the recorded data, the positive evolution of the number of hospitals can be observed for the period 1990-2021. However, there were also short periods when the number of hospitals decreased year-on-year, such as: 1993 recorded 433 hospitals, and the following year (1994) only 415. The sharpest decrease was recorded in 2017, when there was a drop from 576 (the maximum number recorded for the entire period analysed) to 515 in 2018. Then a period of recovery and growth followed again, reaching 535 in 2021.

The analysis of the data recorded for the privately owned hospitals shows that, in the first period (1990-1997), there were no such hospitals in Romania. Then, for the period 1998-2021, this number increased constantly year-on-year, from 2 private units in 1998, to 168 private units in 2021. Most probably, this phenomenon will not stop here, as it can be seen there is a high demand for private healthcare services in the market (Marin-Pantelescu and Hint, 2020).

Studies show that the reasons why Romanians choose private hospitals instead of public ones range from better conditions, quality of services offered, high performance equipment, consultations, treatments and intervention facilities, to the professional staff (Romania Journal, 2022).

The number of public hospitals has fluctuated over the recorded period, the main reason being the updating of regulations and legislation, which has had direct and immediate consequences on the medical system in Romania (Ministry of Health, 2010).

Up to this point, the study presented the analysis of the number of hospitals in Romania, by types of ownership. However, their sum is not so easy to analyse, which is why the paper continues with the presentation of the number of hospitals by counties for the year 2021.

Table 2

The record of the number of hospitals in Romania by ownership and counties for the year 2021

Nr. Crt.	Counties	Hospital (total)*	Public property*	Private property*
1	Bihor	14	12	2
2	Bistrita-Nasaud	4	3	1
3	Cluj	36	19	17
4	Maramures	13	8	5
5	Satu Mare	6	4	2
6	Salaj	6	4	2
7	Alba	11	9	2
8	Brasov	24	13	11
9	Covasna	4	4	0
10	Harghita	5	5	0
11	Mures	16	9	7
12	Sibiu	12	9	3
13	Bacau	16	7	9
14	Botosani	4	4	0
15	Iasi	29	19	10
16	Neamt	7	6	1
17	Suceava	13	9	4
18	Vaslui	5	4	1
19	Braila	5	4	1
20	Buzau	9	5	4
21	Constanta	21	11	10
22	Galati	10	10	0
23	Tulcea	4	3	1
24	Vrancea	7	6	1
25	Arges	17	15	2
26	Calarasi	6	5	1
27	Dambovita	4	4	0
28	Giurgiu	4	3	1
29	Ialomita	4	4	0
30	Prahova	25	15	10
31	Teleorman	7	7	0
32	Ilfov	9	4	5
33	Bucuresti	76	50	26
34	Dolj	24	13	11
35	Gorj	8	8	0

Nr. Crt.	Counties	Hospital (total)*	Public property*	Private property*
36	Mehedinti	4	4	0
37	Olt	6	5	1
38	Valcea	11	6	5
39	Arad	12	7	5
40	Caras-Severin	6	5	1
41	Hunedoara	10	10	0
42	Timis	21	15	6

** the data are expressed in numbers*

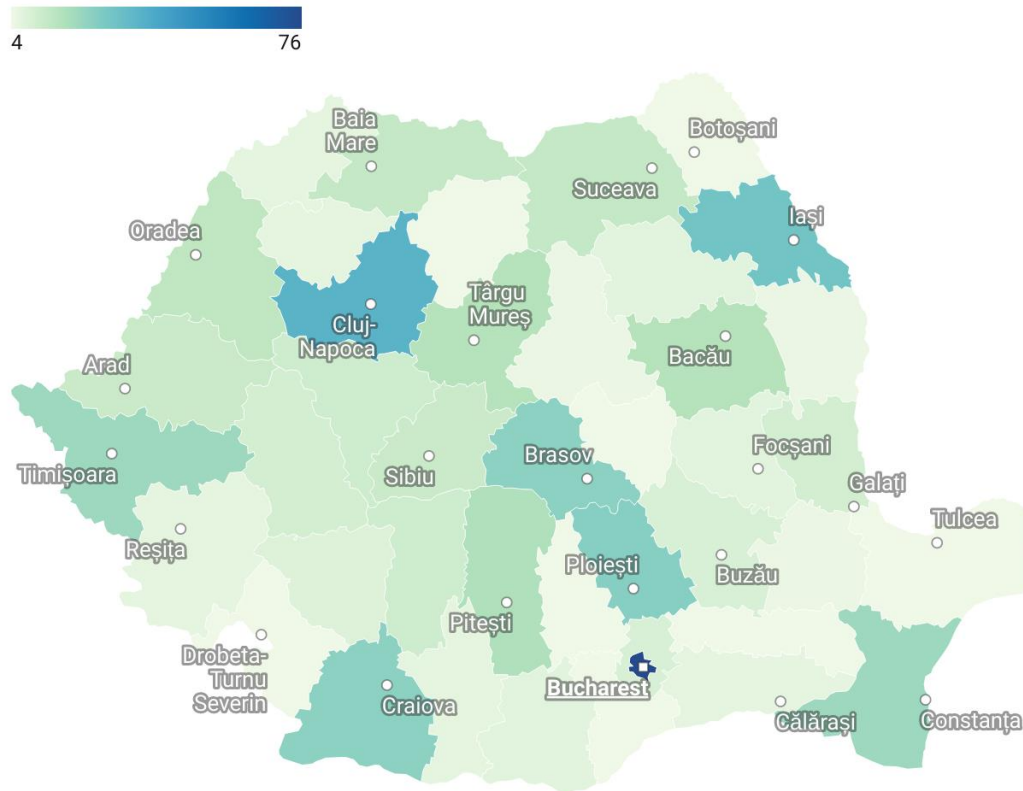
Source: Made by the authors based on data provided by the National Institute of Statistics <http://statistici.insse.ro/> (accessed on April 2, 2023)

As it can be observed in Table 2, for the year 2021, in Romania, the county with the most hospitals is Bucharest, the capital and largest city of Romania. “It is described as the cultural, financial, entertainment, and media centre in the country with a significant influence in Eastern and South-Eastern Europe as well” (Wikipedia, 2023). As it can be observed, Bucharest, the capital, had 76 hospitals in 2021, of which 50 are public and 26 private.

The capital is followed by Cluj with 36 hospitals (19 public and 17 private), where there is an almost equal percentage between the two forms of ownership, Iasi with 29 hospitals (19 public and 10 private), Prahova with 25 (15 public and 10 private) and Brasov with 24 hospitals (13 public and 11 private), where an almost equal balance can be noticed between public and private hospitals. On the opposite side, Covasna, Botoşani, Dâmboviţa, Ialomiţa and Mehedinţi counties have only 4 hospitals each. It is interesting that there are no private hospitals in these regions.

In order to highlight the counties where the most hospitals are located, the graphic representation (Figure 1) of the total number of hospitals, per counties, in Romania, in the year 2021, was performed.

The graphic representation of hospitals in Romania on the map, in 2021 by region



Source: The national institute of statistics • Created with Datawrapper

Fig. 1. Image of graphic representation of hospitals in Romania on the map, in 2021 by counties

Source: Made by the authors with Datawrapper based on data provided by the National Institute of Statistics <http://statistici.insse.ro/> (accessed on April 2, 2023)

The graphical representation, marked with dark blue, shows the areas from Romania with the highest concentration of hospitals, while the lightest green shows the areas with the fewest hospitals (Covasna, Botoșani, Dâmbovița, Ialomița and Mehedinți counties).

For a more impactful image of the health system in Romania, the number of hospitals, physicians (dentists excluded) and resident population are then presented by development region for the same year analysed.

Table 3

Presentation of statistical data on the development regions of Romania for the number of hospitals, physicians (dentists excluded) and resident population for the year 2021

Development regions	The year 2021		
	Hospitals (number)	Physicians (dentists excluded) (number)	Resident population at January 1st 2021 (thousands of persons)
NORTH - WEST	79	9313	2537,017
CENTER	72	8339	2302,833
NORTH - EAST	74	8759	3163,465
SOUTH - EAST	56	5750	2351,636
SOUTH - MUNTENIA	67	4810	2868,994
BUCHAREST - ILFOV	85	17012	2327,057
SOUTH - WEST OLTENIA	53	6339	1892,078
WEST	49	8438	1758,582

Source: Made by the authors based on data provided by the National Institute of Statistics <http://statistici.insse.ro/> (accessed on April 2, 2023)

To continue the analysis of the number of hospitals by region this time, it can be observed from Table 3 that most of them are in the BUCURESTI - ILFOV Region (in total 85 hospitals). The North-West region has 79 hospitals, followed by the North-East (with 74), Center (with 72) and South-Muntenia (with 67) regions. The least developed area from the perspective of the number of hospitals is the West Region with 49 hospitals.

When considering the number of physicians, it can be observed that the South-Muntenia Region has the lowest registration, which is not correlated with the number of hospitals. On the other hand, the West Region is the best in terms of the number of doctors compared to the size of the population, registering 49 hospitals with 8438 physicians for 1758,582 thousand residents.

In order to divide Romania into regions and see which is the best in terms of the number of hospitals, figure no. 2 was created by the authors.

The graphic representation of hospitals, in Romania, in 2021

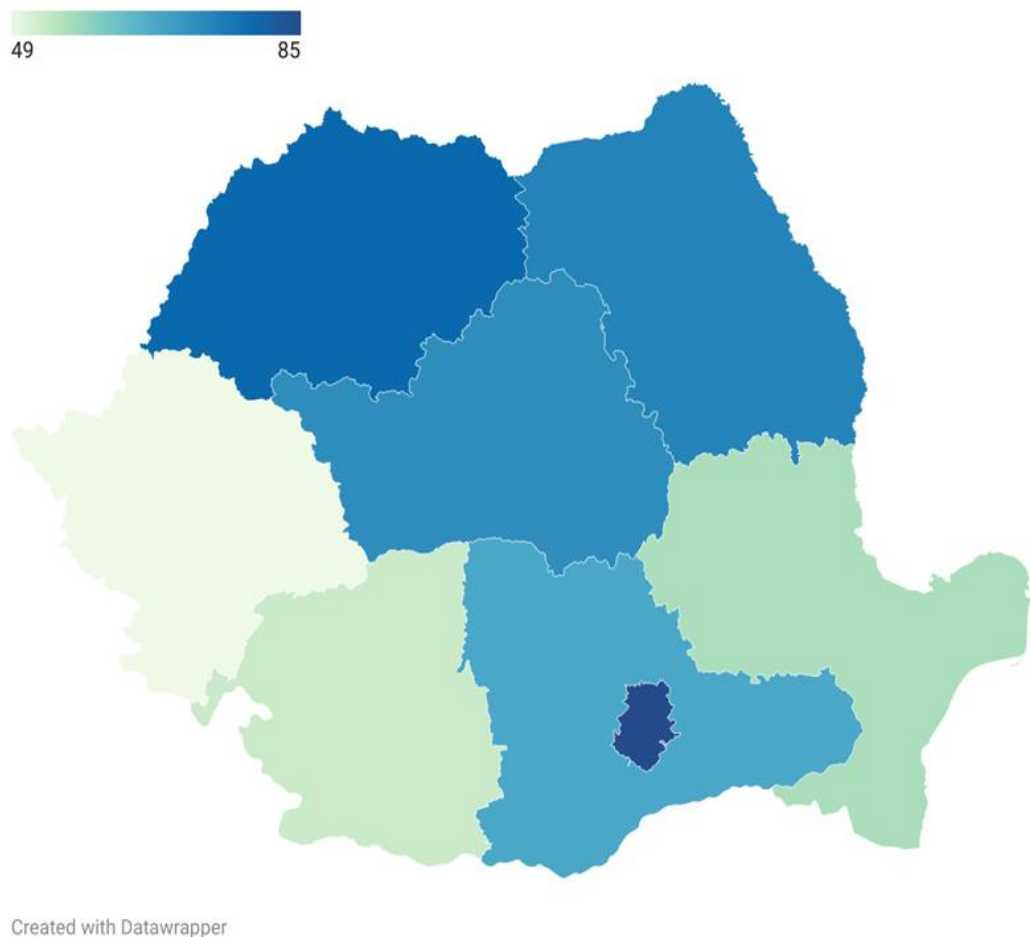


Fig. 2. Image of graphic representation of hospitals in Romania on the map, in 2021 by development regions

Source: Made by the authors with Datawrapper based on data provided by the National Institute of Statistics <http://statistici.insse.ro/> (accessed on April 2, 2023)

Dark blue shows the areas where there is a large number of hospitals, while light green shows the region with the fewest hospitals (West Region).

In the end, the analysis carried out succeeded in dividing Romania's development regions, according to the number of hospitals in 2021, into 3 categories:

- **The developed area** according to the number of hospitals where the regions are included: Bucharest-Ilfov and North-West;

- **The partly developed area** according to the number of hospitals where the regions are included: North-East, Center and South - Muntenia;
- **The undeveloped area** according to the number of hospitals where the regions are included: South-East, South-West-Oltenia and West.

3. Conclusions

The paper analyses the Romanian health system from the perspective of the number of hospitals. For this analysis, data from the Tempo database of the National Institute of Statistics were used. As it appears from the study, there is a positive evolution of the number of hospitals for the period 1990-2021. However, there were also short periods in which the number of hospitals decreased from one year to another. The sharpest decrease was recorded in 2017, when there was a drop from 576 hospitals (the maximum number recorded for the entire analysed period) to 515 in 2018. Then a period of recovery and growth followed again, reaching 535 in 2021.

According to the division by counties, for the year 2021, the most hospitals in Romania are located in Bucharest, which is the capital of the country and where 76 hospitals can be found (50 public and 26 private). The capital is followed by Cluj (36 hospitals), Iasi (29 hospitals), Prahova (25) and Brasov (24 hospitals). The smallest number of hospitals are located in: Covasna, Botosani, Dambovita, Ialomita and Mehedinti - areas where there is no private hospital.

A division of the development regions of Romania was carried out, depending on the number of hospitals in: Developed areas, Partly developed areas and Undeveloped areas according to the number of hospitals.

In conclusion, there is a lack of new hospitals development in Romania. This is evident from the campaigns among politicians who promote the construction of new hospitals in the country (Sittings of the Chamber of Deputies of April 20, 2022). Unfortunately, there have been no state-built hospitals in recent years, and furthermore, their number is decreasing every year.

However, there is also an example of good practice in this field of hospitals in Romania. The NGO "Dăruieşte Viaţă", which is building the First National Children's Hospital for Cancer, Severe Illnesses and Trauma exclusively from donations (Dăruieşte Viaţă, 2023).

Following the study carried out and based on the results obtained, the conclusion is that the Romanian Ministry of Health should take immediate measures; in the same way, the whole political class should support more actions in the field of health in Romania, primarily by creating and developing the necessary infrastructure.

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