

Territorial differentiation in the physiotherapy profession in Poland

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Abstract

Aims: The establishment of the professional self-government in 2015 based on the Act on the Profession of Physiotherapist structured the profession in Poland, providing it a legal framework. The mandatory professional register was also introduced. This is an important database of demographic data on the physiotherapy market in the country, based on which the first summary statistics were created. The aim of this study was to estimate and delineate the territorial differentiation of physiotherapists' professional activity in the country.

Material and methods: The data originate from the official statistics of the National Chamber of Physiotherapists, associating all persons with the right to practice the profession.

Results: Data analysis shows that counties in south-eastern Poland are characterised by a very high number of physiotherapists, while an insufficient number of physiotherapists is observed, for example, in the central-eastern part of the Pomeranian Voivodeship.

Conclusions: While the excess number of physiotherapists provides a specific comfort for people living in these regions, the insufficient supply of services in other areas poses a serious threat to the public health of residents. Hence, stakeholders should make efforts to improve this state of affairs as soon as possible. Nevertheless, changes in the number of physiotherapists in Poland should certainly be systematically monitored so that the areas requiring intervention can be identified.

Key words

professional activity,
distribution,
demographic data

Introduction

Physiotherapy in Poland is a legislated medical profession of public trust. The National Chamber of Physiotherapists (KIF) is the professional self-government that gives all Polish physiotherapists the right to practice. In order to obtain this right as a physiotherapist, there are formal criteria to be fulfilled, as defined in the Act of 25 September 2015 on the Physiotherapist Profession (Journal of Laws of 2018, item 505 with further amendments). Therefore, physiotherapy is an independent medical profession. Both the professional title and functions of physiotherapists are regulated by law, and physiotherapists are legally responsible for their professional activities.

The main duties of the KIF are to represent physiotherapists and to take responsibility for the proper practice of the profession in the interest and for the protection of the public. The KIF also manages the professional register of physiotherapists, which includes physiotherapists who practice in healthcare facilities contracted to the National Health Fund (NFZ) and those who work outside the system of guaranteed services.

The data from the KIF show that at the end of 2019, there were 65,443 registered physiotherapists performing their professional activity in Poland.

Aims

The aim of this study was to estimate and delineate the territorial differentiation of physiotherapists' professional activity in Poland based on professional register data.

Material and methods

The statistics come from the official records of the KIF, which associates all people who have the right to practice physiotherapy in Poland. In this regard, these statistics can be considered official national data.

In the territorial analysis, at the national, regional, provincial and county levels, intensity indicators—defined according to the data from the

Central Statistical Office (GUS)—were used to show the number of physiotherapists from a given territorial unit per 10,000 people and the number of people per physiotherapist. At the provincial level, the regional classification was determined based on the quartile distribution.

In order to determine the demographic indicator for counties, dichotomous variables were used based on the following indicators: size, population density, area, size of the capital of the county and classification (or not) of the given county as a city with county rights (the method of determining dichotomous variables from the variables presented above is described later in the report).

For each county, a 6-grade scale of the demographic conditions was defined, and all counties in Poland were categorized according to the values adopted on this scale. For each of the 6-grade subcategories of counties, the typical number of physiotherapists per 10,000 inhabitants was determined as the median value \pm quarterly deviation. This number was subsequently compared for each county with the typical values (median \pm quarterly deviation) characterising counties of a given class according to the above-mentioned 6-grade scale.

If the values were higher/lower than the median value \pm quarterly deviation, the county was classified as having an excessive/insufficient number of physiotherapists per 10,000 inhabitants, respectively. The implementation of the described procedure allowed for the development of a map of the number of physiotherapists per 10,000 inhabitants that considers the demographic conditions of the counties.

Results

General information

Differentiation by gender

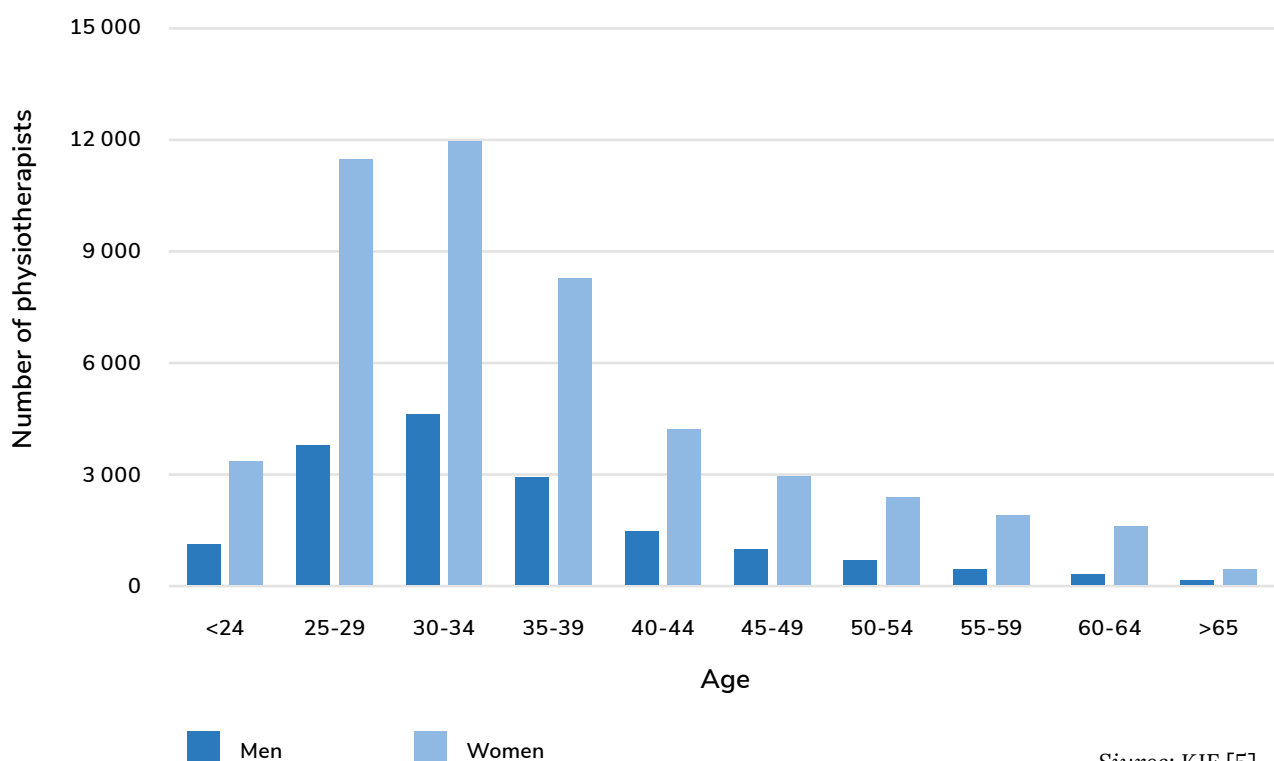
Nearly three-quarters of all physiotherapists are women. The highest feminisation rate was observed among physiotherapists working in Świętokrzyskie and Podkarpackie Voivodeships,

where women constituted 78.5% and 78% of all physiotherapists, respectively. The lowest rates of female professionals were registered in the Mazowieckie (69.6%) and Łódzkie (70.4%) Voivodeships.

Differentiation by age

Physiotherapists are relatively young people, mostly between 25 and 39 years old. The median age is 34 (33.9) with no significant gender differences (men 33.9, women 34.0), as presented in Figure 1.

Figure 1. The number of physiotherapists in Poland according to gender and age.



Source: KIF [5].

It was shown that only one out of eight physiotherapists is at least 50 years old (12.7%), with the majority of professionals in this age group being found in the Kujawsko-Pomorskie (18.8%), Zachodniopomorskie (16.1%) and Lubuskie (15.9%) Voivodeships and the lowest rates being registered in the Warmińsko-Mazurskie (9.0%), Opolskie (9.2%) and Lubelskie (9.5%) Voivodeships. The relatively high frequency of older physiotherapists in western Poland may result from the emigration of younger physiotherapists over the western border (i.e., mainly to Germany).

The analysis of the data presented in Figure 1 shows that the number of physiotherapists in

pre-retirement age (60–64 for men and 55–59 for women) is low, at about 3.5% nationwide, with a further fraction of 3.6% of physiotherapists working despite their retirement age (i.e., at least 60 for women and 65 for men).

A bigger challenge is the relatively high number of female physiotherapists at the procreation age (mainly aged 26–34). Nationwide, this demographic segment constitutes over one-third of the total number of physiotherapists (35.7%), with the highest proportions in the Lubelskie (41.5%) and Opolskie (40.2%) Voivodeships and the lowest in the Zachodniopomorskie (30.1%) and Kujawsko-Pomorskie (31.1%) Voivodeships.

Differentiation by education

In terms of education level, two-thirds of the physiotherapists registered in Poland have a master's degree in physiotherapy (65.7%), two out of nine have a bachelor's degree in physiotherapy (22.1%), and one in eight has a technician's degree in physiotherapy (12.2%). The highest proportions of physiotherapists with a master's degree are in the Opolskie (76.6%) and Podkarpackie (73.7%) Voivodeships, while the lowest rates can be found in the Zachodniopomorskie (47.6%) and Pomorskie (53.9%) Voivodeships.

Number of physiotherapists in Poland per 10,000 inhabitants

In Poland, there are about 17 physiotherapists per 10,000 inhabitants; in other words, there are about 600 inhabitants per one physiotherapist. The highest number of physiotherapists per 10,000 inhabitants is in eastern (19.0) and south-western (18.7) Poland, and the lowest in the northern (13.9) and north-western (16.0) parts of the country. The data are presented in Table 1.

Table 1. The number of physiotherapists per 10,000 inhabitants in Poland by region.

Region	Number of physiotherapists	Population	Physiotherapists per 10 000 inhabitants	Population per one physiotherapist
North-western	9 952	6 209 547	16.0	624
Northern	8 136	5 840 281	13.9	718
Central	12 885	7 869 734	16.4	611
Eastern	12 655	6 669 713	19.0	527
Southern	14 554	7 934 142	18.3	545
South-western	7 261	3 887 731	18.7	535
Total	65 443	38 411 148	17.0	587

Source: KIF / GUS [5, 7].

Voivodeship perspective

The highest numbers of physiotherapists per 10,000 inhabitants were found in the Świętokrzyskie (21.8), Podkarpackie (20.4) and Małopolskie (18.9) Voivodeships, while the lowest were registered in the Lubuskie (11.4), Warmińsko-Mazurskie and Pomorskie (12.1) Voivodeships (Figure 2). The analysis of the data showed that the highest number of physiotherapists per 10,000 inhabitants was found in southern Poland and the lowest in northern Poland. However, despite its western location, the Lubuskie Voivodeship has the lowest number of physiotherapists (Figure 2).

County perspective

The analysis of the data at the county level indicates that the highest intensity of physiotherapists per 10,000 inhabitants is found in the south-eastern counties of Poland—more precisely, in the counties located in the southern part of the Dolnośląskie Voivodeship and in the northern part of the Warmińsko-Mazurskie Voivodeship (Figure 3). High numbers of physiotherapists are found in cities with county rights, while their surrounding counties are characterised by much lower numbers (Figure 4).

Figure 2. The number of physiotherapists in different voivodeships in Poland.

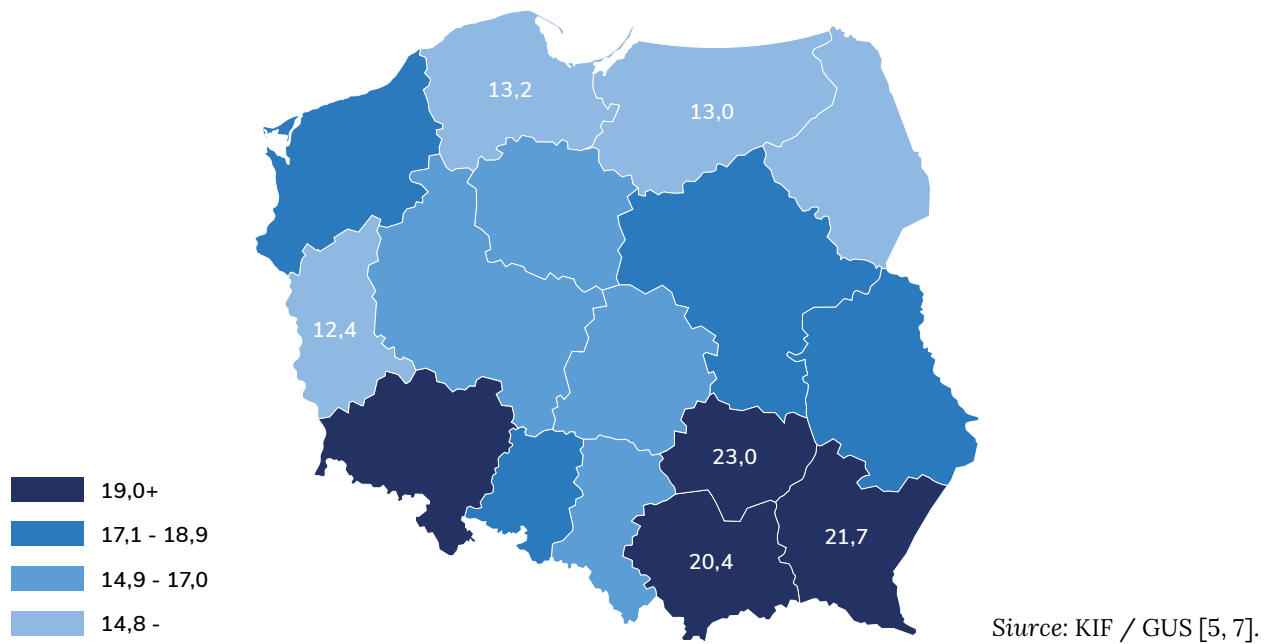
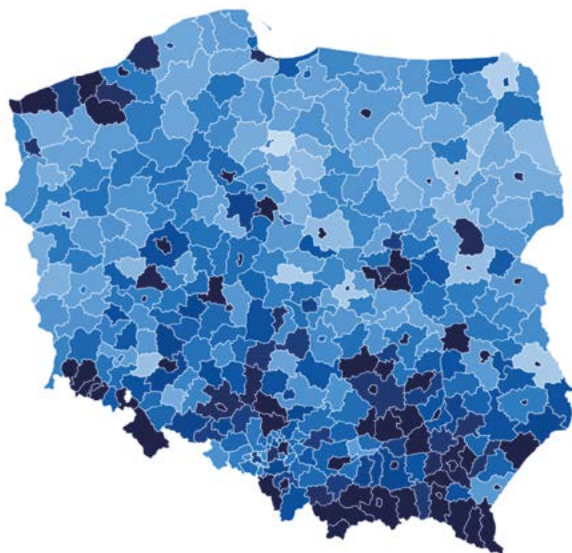
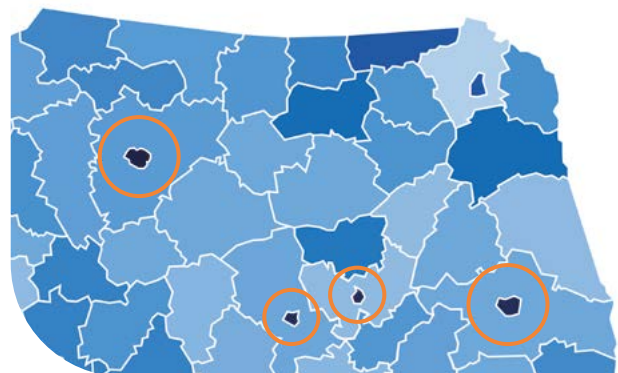


Figure 3. The number of physiotherapists in different counties in Poland.



Source: KIF / GUS [5, 7].

Figure 4. The number of physiotherapists in cities with county rights and in surrounding counties.



Source: KIF / GUS [5, 7].

Demographic determinants of the number of physiotherapists in Poland at the county level

In order to determine the demographic dependencies affecting the number of physiotherapists in Poland at the county level, an analysis of the following factors was undertaken: population, population density (people per km²) and area of the county, size of the county capital¹, percentage of county population living in towns and county type (with county rights, adjacent to a town with county rights or not adjacent to a town with county rights).

Our statistical-demographic analysis showed that the number of physiotherapists is positively correlated with county population (Figure 5)². The lowest number of physiotherapists was found in small counties (up to 50,000 inhabitants), where, on average, there were 13 physiotherapists per 10,000 inhabitants. In medium counties (50,000–100,000 inhabitants), there are 14 physiotherapists per 10,000 inhabitants, while in large ones (100,000–200,000 inhabitants), one can find 16–16.5 physiotherapists per 10,000 inhabitants. In very large counties (over 200,000 inhabitants), there are over 18 physiotherapists per 10,000 inhabitants, which is over 40% more than in small counties.

Among small counties, the highest number of physiotherapists per 10,000 inhabitants (38.2) was found in Świnoujście (a city with a county rights in the Zachodniopomorskie Voivodeship), followed by 37.3 in Krosno (a city with a county rights in the Podkarpackie Voivodeship) and 26.9 in Pińczów County (Świętokrzyskie Voivodeship), while the lowest number of physiotherapists was 5.2 in Grudziądz County (Kujawsko-Pomorskie Voivodeship), followed by 5.2 in Suwałki County (Podlaskie Voivodeship) and 6.2 in Golub-Dobrzyń County (Kujawsko-Pomorskie Voivodeship).

Among medium-sized counties, the highest number of physiotherapists per 10,000 inhabitants (69.9) was noted in Busko County (Świętokrzyskie Voivodeship), followed by 64.9 in Aleksandrów County (Kujawsko-Pomorskie Voivodeship) and 56.1 in Kołobrzegs County (Zachodniopomorskie Voivodeship), while the lowest number of physiotherapists was 6.4 in Łęczycza County (Łódzkie Voivodeship), followed by 6.8 in Chełms County (Lubelskie Voivodeship) and 7.5 in Środa Śląska County (Dolnośląskie Voivodeship).

Among large counties, the highest number of physiotherapists (34.8) was recorded in Rzeszów (a city with a county rights in the Podkarpackie Voivodeship), followed by 29.7 in Krosno County (Podkarpackie Voivodeship) and Tarnów (a city with a county rights in the Małopolskie Voivodeship), while the lowest concentration of physiotherapists was 1.2 in Wałbrzych (Dolnośląskie Voivodeship) (the correctness of the data for this location should be verified with the IT department), followed by 7.9 in Płock County (Mazowieckie Voivodeship) and 8.9 in Gdańsk County (Gdańsk Voivodeship).

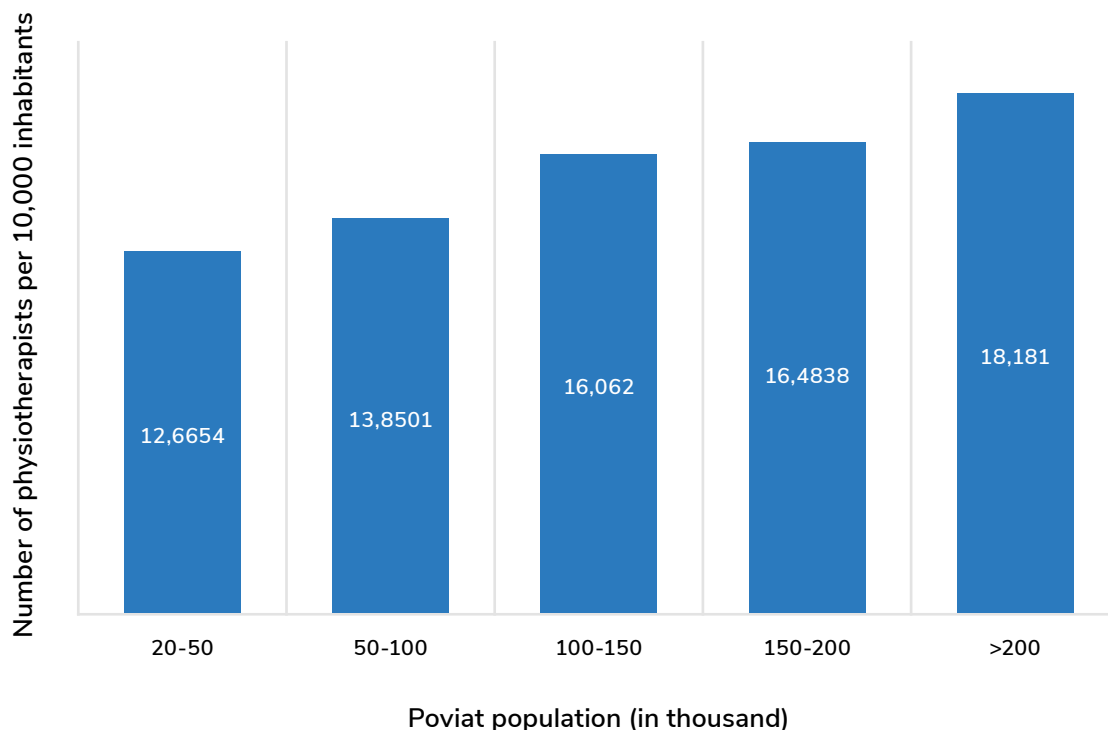
Among very large counties, the highest concentration of physiotherapists (26.0) was found in Wrocław (Dolnośląskie Voivodeship), followed by 24.2 in Nowy Sącz County (Małopolskie Voivodeship) and 24.0 in Lublin (Lubelskie Voivodeship), while the lowest number of physiotherapists was 10.6 in Wejherowo County (Pomorskie Voivodeship), followed by 14.2 in Wołomin County (Mazowieckie Voivodeship) and 14.2 in Sosnowiec (a city with a county rights in the Śląskie Voivodeship).

It is worth noting that the highest number of physiotherapists is usually found in cities with county rights, while counties surrounding cities with county rights relatively often register the lowest numbers.

¹The capital or the biggest city located on the territory of the county if the capital of the county lies outside its borders (e.g., the capital of Opole County is the city of Opole located outside the borders of the county; thus, the city of Ozimek is included here as the biggest city in the county. Opole, on the other hand, is the capital city of the Opole County).

²The map was developed in cooperation with the Department of Demography of the University of Łódź in Poland. In order to eliminate the influence of potential outlier observations, the figure was created based on the median value rather than the arithmetic mean.

Figure 5. The number of physiotherapists per 10,000 inhabitants according to county size.



Source: KIF / GUS [5, 7].

Discussion

Based on the data from the obligatory KIF registry, it is possible to perform a reliable analysis of the territorial differentiation of physiotherapists in Poland. However, it is very difficult to obtain comparative statistical data when analysing European markets. This is due to the lack of a standardised and systematically updated statistical database on the demographics of the physiotherapy profession. An additional complication is the reliance of professional communities on estimations that are unsupported by a registry. Out of 41 member countries of World Physiotherapy (WP) in Europe, mandatory reporting (through a professional register) is carried out by only about 80% (31) of the countries [1].

It is worth mentioning that the different departments of health ministries in Europe, while keeping statistics concerning the health sector, do not always specify the professional group of phy-

siotherapists. The statistics usually concern doctors, dentists, nurses and pharmacists, whereas physiotherapists are often included in a common database with other health professions. Additionally, many European countries recognise physiotherapy as a paramedical profession and may combine it with the so-called allied health professions. All countries that have a self-governing professional body (eight countries in Europe) take on the duty to maintain professional registers and report this data to the relevant departments of their Ministry of Health [1].

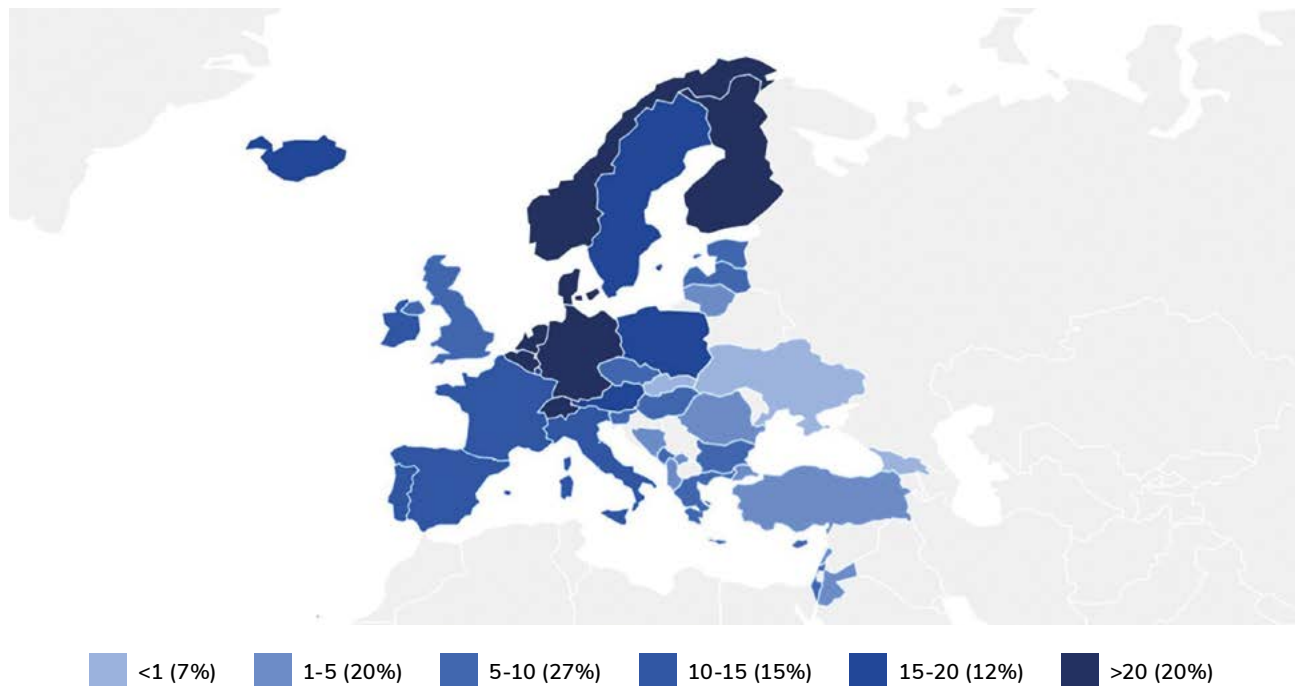
Only in 2013 did a consultation launched by the European Commission highlight the wide disparities in the characteristics of physiotherapy markets and the need to have them unified [2]. Based on this analysis and the increased demand from society for physiotherapy services, Eurostat has created a summary of data on health professions,

physiotherapy included. The Healthcare personnel statistics, which concerns dentists, pharmacists and physiotherapists, provides information about the number of professionally active physiotherapists in the European Union countries (EU-27): 563,000, according to data from 2018. Based on Eurostat, physiotherapy is the most differentiated health profession in terms of the distribution of professionals per number of inhabitants. On average, there were 126 physiotherapists per 100,000 inhabitants in the EU-27 in 2018. The relative distribution of physiotherapists

across member countries was more differentiated than for dentists or pharmacists and ranged from 229 per 100,000 inhabitants in Germany to 10 per 100,000 inhabitants in Romania [3].

Poland, with a number of 170 physiotherapists per 100,000 (17 per 10,000) inhabitants, indicates quite a high response to the Polish society. Comparing with the WP report data, the countries with 20 or more physiotherapists per 10,000 inhabitants are France, Germany, Finland, Norway, Netherlands, Belgium, Denmark and Switzerland (Figure 6).

Figure 6. The number of practicing physiotherapists per 10,000 inhabitants in 2020.



Source: World Physiotherapy 2020: Profile the Profession interactive database [1].

However, there is less than one physiotherapist per 10,000 inhabitants in Georgia, Ukraine and Slovakia [1]. However, it is important to note that there are no statistics concerning the detailed territorial differentiation of physiotherapists in each country.

Based on Eurostat, there was an increase of 14 physiotherapists per 100,000 inhabitants in the EU-27 between 2013 and 2018. This increase was

recorded in all member countries except one, the Netherlands, where the rate decreased by 17 practicing physiotherapists per 100,000 inhabitants between 2013 and 2018 (the break in data acquisition should be noted). The number of physiotherapists per 100,000 inhabitants increased significantly between 2013 and 2018 in Cyprus and Ireland, although there was a break in the data for both countries. Among other member

countries, the fastest increase was recorded in Lithuania, of 32 physiotherapists per 100,000 inhabitants, moving from the EU-27 average in 2013 to a higher rate in 2018. There was also a large increase in Spain (up to 30 per 100,000 inhabitants in the analysed period), as well as in Belgium and Hungary [3].

For comparison, the annual WP report for the entire European region gives the number of all professionally active physiotherapists as 807,460 (data for 2020 for all 41 member countries) [4]. Poland, with nearly 70,000 physiotherapists, accounts for about 9% of the entire population of physiotherapists in 2020.

When comparing the gender distribution in the physiotherapy profession, the percentage is higher in favour of female physiotherapists in all WP member countries [1,4]. The countries with the highest number of women physiotherapists in Europe are Estonia, Slovenia and Hungary. Globally, 63% of physiotherapists worldwide are women [4]. In Poland, this percentage is 73%, according to data from 2020. In addition, in 60% of EU-27 countries, physiotherapists are the third most numerous group among medical professions, right after doctors and nurses [2]. The situation is similar in Poland [5].

Another barrier to the demographic comparative statistics of the physiotherapy profession that is worth mentioning is the wide variation in the characteristics of this profession in Europe. The market includes both public and private provision. Reliable data on the distribution of physiotherapists' professional activity allows for planning and

developing the market according to the needs of societies. Comparative analysis with other countries should also be performed systematically, especially considering that physiotherapists are the third-most migrant group among regulated professions in Europe [6].

Conclusions

To summarise, the abundance of physiotherapists in certain parts of Poland provides a certain degree of comfort to the people living in those areas, and, in general, it is difficult to postulate that this state of affairs should be changed. However, the insufficient provision of physiotherapy services in other regions is a serious threat to the public health of the population. Therefore, the central and local governments and those responsible for health policy in Poland should make efforts to improve the situation as rapidly as possible. Nevertheless, the changes in the number of physiotherapists in Poland should certainly be monitored systematically so that the areas which need intervention can be identified. The distribution of physiotherapists in regions with similar population structures, urbanisation levels and natural resources should be compared across countries.

The full Report „Territorial differentiation in the physiotherapy profession in Poland” available at: <https://kif.info.pl/wp-content/uploads/2021/06/Zroznicowanie-terytorialne-aktywnosci-zawodowej-fizjoterapeutow-w-Polsce.pdf>

References

1. Profile the Profession interactive database, World Physiotherapy 2020 [online]. Dostęp 20 styczeń 2021, godz.15:00. Dostępny w <https://world.physio/membership/profession-profile>.
2. Mutual evaluation of regulated professions Overview of the regulatory framework in the health sector on the example of physiotherapists. Report based on information transmitted by Member States and on the meeting of 6 March 2015 [online]. Dostęp: 20 styczeń 2021, godz. 13:00. Dostępny w http://ec.europa.eu/internal_market/qualifications/regprof/index.cfm?lang=en
3. Eurostat Healthcare personnel statistics - dentists, pharmacists and physiotherapists [online]. Dostęp 18 styczeń 2021, godz.18:00. Dostępne w https://ec.europa.eu/eurostat/statistics-explained/index.php/Healthcare_personnel_statistics_-_dentists,_pharmacists_and_physiotherapists
4. Poland - A Profile of the Profession 2020. World Physiotherapy [online]. Dostęp 18 styczeń 2021, godz.19:00. Dostępne w <https://world.physio/sites/default/files/2020-12/2020-amc-poland.pdf>
5. Statystyki Działu Analiz i Statystyk, Krajowej Izby Fizjoterapeutów, Warszawa
6. The EU single market. Regulated Professions database [online]. Dostęp: 19 styczeń 2021, godz. 19:00. Dostępny w <http://ec.europa.eu/growth/tools-databases/regprof/>
7. Główny Urząd Statystyczny, Departament Badań Demograficznych. Ludność. Stan i struktura ludności oraz ruch naturalny w przekroju terytorialnym, 2018. Data publikacji 30.04.2019.