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PART I. DISEASES AND PROBLEMS DISTINGUISHED BY WHO AND FAO

PREVENTIVE MEDICINE IN CLINICAL PRACTICE: RATIONALE BASED ON THE DIVERSITY OF IMPLEMENTED INTERVENTIONS WITH SPA PATIENTS IN POLAND IN 2018-2023

Patryk Tomasz Wicher[1(A,B,C,D,E,F,G)], **Andrzej Śliwczyński**[2(A,B,C,D,E,F,G)], **Waldemar Wierzba**[2(A,B,C,D,E,F,G)], **Katarzyna Grekowicz**[3(A,B,C,D,E,F,G)], **Michał Mółka**[1(A,B,C,D,E,F,G)], **Anna Wicher**[1(A,B,C,D,E,F,G)], **Adam Rzeźnicki**[4(A,B,C,D,E,F,G)], **Joanna Baj-Korpak**[5(C,D,E,G)]

[1]WSB University – National Louis University in Nowy Sącz, Poland
[2]National Medical Institute of the Ministry of the Interior and Administration, Warsaw, Poland
[3]Economic Schools Complex, Nowy Sącz, Poland
[4]Department of Social Medicine, Faculty of Health Sciences, Medical University of Lodz, Poland
[5]Faculty of Health Sciences, John Paul II University in Biała Podlaska, Poland

Authors' contribution
A. Study design/planning
B. Data collection/entry
C. Data analysis/statistics
D. Data interpretation
E. Preparation of manuscript
F. Literature analysis/search
G. Funds collection

Summary

Background. Spa treatment is widely used in today's medicine and it is increasingly gaining recognition among patients. Its essence is the application of natural therapeutic stimuli, individually selected according to the stage of the disease. Balneo-physical treatments carried out in spas result in a reduction in ailments, as well as an improvement in the quality of life of patients. At the same time, it should be emphasized that the treatment of patients requires an appropriate plan, considering the duration of therapy. The aim of this study was to provide empirical argumentation as a basis for innovative modifications of spa treatment in Poland.

Material and methods. Health problems and patient ages were grouped according to the methodology of the Central Statistical Office.

Results. In 2018, the largest number of patients used services because of rheumatic diseases (around 300,000), followed by cardiological (over 43,000) and neurological interventions (over 33,000). Rheumatic interventions remained in the lead in 2023, while cardiological ones swapped the ranking position with neurological interventions.

Conclusions. The epidemiological data obtained between 2018 and 2023, i.e. including the post-pandemic period, provide a set of indications justifying the indispensable increase in the importance of preventive medicine in daily clinical practice, as well as during spa treatment.

Keywords: INNOAGON, COVID-19, preventive medicine, innovation, patient

Introduction

Spa treatment is widely used in today's medicine and increasingly gaining recognition among patients. Rehabilitation in specialized spa centers is used in order to counteract the consequences of many diseases [1-6]. Spa treatment in its essence consists of the use of natural therapeutic stimuli, selected individually according to the stage of the disease. Balneological and physical procedures carried out in a

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Address for correspondence: Joanna Baj-Korpak, Faculty o Health Sciences, John Paul II University in Biała Podlaska, Sidorska 95/97, 21-500 Biała Podlaska, Poland, email: j.baj-korpak@dyd.akademiabialska.pl, phone: +48 83 344 99 00

ORCID: Patryk Tomasz Wicher https://orcid.org/0000-0002-1330-3639, Andrzej Śliwczyński https://orcid.org/0000-0002-0239-1637, Waldemar Wierzba https://orcid.org/0000-0002-8134-2955, Katarzyna Grekowicz https://orcid.org/0009-0003-5115-9193, Michał Mółka https://orcid.org/0000-0003-1543-3354, Anna Wicher https://orcid.org/0009-0000-6434-6914, Adam Rzeźnicki https://orcid.org/0000-0002-9926-721X, Joanna Baj-Korpak https://orcid.org/0000-0002-6379-2485

spa result in a reduction in ailments as well as quality of life improvement. Treatment of patients requires an appropriate treatment plan and therapy duration, which is 3 weeks on average, and 4 weeks for older patients and those with more advanced diseases. Main therapeutic methods commonly used in spas include: climatotherapy, hydrotherapy, kinesiotherapy, including various forms of physical activity and physical therapy. In addition, diet, health education and pharmacotherapy are applied.

The demand for spa treatment, like other health services, largely depends on the proportion of older people in the general population. The demographic situation of Poland is still considered relatively advantageous from a public health perspective. Poland's population is younger on average than that of the majority of European Union countries (EU27); however, according to Eurostat analyses, this advantageous difference will gradually disappear in Poland. It is estimated that both the median age and the proportion of people aged 65 and over will be significantly higher in Poland than the average for EU countries by the middle of this century [7]. Whatever the reason for this increase, it will be linked to increasing prevalence of diseases and to a higher proportion of seniors in the general population. As a result, the number of patients requiring access to appropriate health services will increase significantly [8]. Furthermore, the high prevalence of chronic diseases in Polish society clearly points to the need for an adequate level of rehabilitation services, including spa treatment. From a public health perspective, it is important to note that the methods used in spa treatment, such as balneotherapy, hydrotherapy and climatotherapy, in combination with other rehabilitation strategies [9], are particularly helpful in the rehabilitation of obese people. Health problems experienced by this group of patients represent an increasing burden on the health care system in Poland [10-12].

A new challenge for spa treatment could result from the impact of the COVID-19 pandemic that healthcare worldwide has been facing since 2019. In the first instance, healthcare providers were tasked with saving the lives of COVID-19 patients. It has now become apparent that the disease and often long hospitalization can lead to health effects such as muscle weakness and reduced cardiorespiratory capacity or neuropathy. In addition, post-infection neurological syndromes are possible, such as Guillain-Barré syndrome [13,14], immunological disorders [15], anxiety, depression, post-traumatic stress or cognitive disorders [16]. The introduction of rehabilitation and spa treatment in patients who have suffered from COVID-19 has good clinical outcomes and a positive impact on patients' health [17-19]. Given the large number of patients who suffered from COVID-19, including the severe form of the disease, there is a need to ensure that they have broad access to rehabilitation services that provide appropriate treatment models tailored to the patients' health needs. Achieving this must be preceded by an appropriate analysis of the prevalence of inpatient rehabilitation services.

Spa treatment is publicly financed by the national payer in Poland, i.e. by the National Health Fund (NHF). The Health Services Financing Act provides for a separate type of contract, signed between a Provincial Branch of the NHF and a spa entity (PLN 1,507,989 thousand was assigned to spa treatment in 2023, PLN 1,695,295 thousand was assigned in 2024 [20]. As part of the volume of funds secured in the financial plan, patients benefit from free or partially paid health services, natural therapies and balneological methods of improvement and recovery.

Aim of the work

The purpose of the study was to provide empirical reasoning as a basis for innovative modifications of spa treatment in Poland.

Material and methods

The databases of the NHF for contracts classified as 'spa treatment' concluded between 2018 and 2023 were analyzed. The identifiers of patients to whom health services were provided were extracted from the NHF

databases. In accordance with the provisions of the Act of 27 August 2004 on health care services financed from public funds Journal of Laws of 2024, item 146, the public payer is authorized to process data on patients and health services provided. This data was compiled by the payer in a way that guaranteed patient anonymity, and aggregated. The analysis of the data produced in this way does not violate the personal rights of patients. The grouping of health problems and patient ages was carried out according to the methodology of the Central Statistical Office (CSO) [21-30].

Due to the high level of generality of the issue explored, descriptive statistics are reduced to the number of patients. The specification included in the tables takes into account the name of a health problem and, in most cases, the name of the medical specialty recommending the main ways, methods, means and tools of intervention (in brackets under 'area of medical intervention').

Results

Legal basis

The number of patients in spa treatment depends on the number of beds in spa centers and the funding capacity of the NHF. In accordance with the regulations in force in Poland, i.e. Article 31d of the Act of 27 August 2004 on health care services financed from public funds (i.e. Journal of Laws, of 2024, item 146 as amended) the Order of the Minister of Health of 23 July 2013 on guaranteed services in the field of spa treatment (Journal of Laws of 2013, item 931), spa treatment is publicly funded. The above-mentioned regulation specifies the list of and conditions regulating the provision of guaranteed services in spa treatment, as well as the level and method of financing guaranteed services (§1 of the Order), which is in line with the views of the doctrine concerning the legal nature of regulations issued on the basis of Article 31d of the Act of 27 August 2004 on health care services financed from public funds. In addition, the Polish legislature has recognized spa treatment as an integral part of the health care system (Article 4 of the Act of 28 July 2005 on spa treatment, spas and areas of spa protection and on spa communes, i.e. Journal of Laws, 2023, item 151 as amended) and introduced a legal definition of spa treatment, emphasizing that spa treatment includes the provision of spa treatment or spa rehabilitation and accompanying physiotherapy treatments (Article 2(1) of the Act of 28 July 2005 on spa treatment, spas and areas of spa protection and on spa communes). The availability of spa treatment services is also an implementation of the constitutional right to health protection, expressed directly in Article 68(1) of the Polish Constitution. The doctrine emphasizes that this is a subjective right, is categorized as a social right, and gives rise to an obligation on the part of public authorities to protect it and ensure that it can be exercised. The above subjectivity means that a citizen can invoke the right to health care in proceedings before a court (in a lawsuit, complaint, cassation complaint, etc.) or proceedings before the Constitutional Court (in a constitutional complaint), but the constitutional right to health care is not a basis for interference in legal relations between private law subjects (employer and employee).

Epidemiological data

By 2019/2020, an increasing trend in the use of spa treatment has been identified, particularly among seniors (81 years and older). In 2018, most patients used such services for rheumatic diseases (approximately 300,000). This was followed by cardiology interventions (over 43,000) and neurology interventions (over 3,000). Rheumatology interventions remain in the lead in 2023, while cardiology receded to swap ranking positions with neurology (Table 1).

Table 1. Number of spa patients by medical problems according to CSO classification and gender in years

Specification of health problems (area of medical intervention)	2018		2019		2020		2021		2022		2023	
	W	M	W	M	W	M	W	M	W	M	W	M
Rheumatic diseases (rheumatology)	195 054	99 898	197 593	102 104	103 628	55 086	132 184	71 041	202 441	109 192	223 009	121 819
Diseases of the nervous system (neurology)	20 232	13 994	21 158	14 228	11 417	7 660	14 524	9 829	22 901	15 479	25 484	16 692
Cardiovascular diseases and hypertension (cardiology)	22 379	21 239	21 380	20 602	10 501	10 524	12 088	11 987	17 543	17 544	16 684	17 095
Diseases of the lower respiratory tract (pulmonology)	10 124	7 648	9 573	7 067	4 490	3 417	5 232	3 929	7 834	5 695	7 383	5 263
Orthopedic and traumatic diseases (orthopedics)	7 384	5 077	7 065	5 058	3 773	2 809	4 083	3 166	5 934	4 414	6 151	4 600
Upper respiratory tract diseases (ENT)	9 529	6 071	8 653	5 495	3 910	2 435	4 429	2 608	6 230	3 734	5 573	3 420
Diabetes (diabetology)	3 110	2 860	2 904	2 643	1 333	1 364	1 652	1 704	2 352	2 372	2 378	2 343
Obesity	1 960	1 392	1 830	1 314	944	721	1 145	960	1 490	1 033	1 407	916
Diseases of the digestive system (gastroenterology, hepatology)	1 804	1 248	1 554	1 135	768	522	771	537	1 031	681	845	588
Skin diseases (dermatology)	900	611	776	536	460	295	520	382	754	490	649	401
Peripheral vascular disease	745	623	766	612	437	342	427	320	599	448	531	505
Kidney and urinary tract diseases (nephrology and urology)	815	695	718	697	309	284	351	411	494	498	441	396
Osteoporosis	526	81	577	93	332	63	371	69	555	81	565	105
Endocrine diseases	1 094	252	882	153	383	57	459	96	590	93	529	117
Female diseases (gynecology)	1 323	-	1 239	-	622	-	587	-	663	-	591	-
Diseases of the blood and hematopoietic system (hematology)	54	36	81	36	30	15	39	9	78	15	69	33

Notes: M – men, W – women, ordinal variable: from the highest sum of cases in 2023.

The lowest number of patients used spa services for hematology, nephrology and urology and osteoporosis treatment (less than 2,000 patients in 2018). Approximately 142,000 men and 239,000 women on average used health services in the period under review.

The proportion of female patients is presented in (Table 2). In addition to therapies related to gynecological conditions, the highest percentage of women was observed in hematology, peripheral vascular disease, with an average of around 21,000 women receiving spa treatment annually. The gender balance of patients: 3.7 males to 6.3 females.

Table 2. Proportion (%) of female patients in spas between 2018 and 2023 by medical problem according to CSO classification

Specification of health problems (area of medical intervention)	2018	2019	2020	2021	2022	2023
Female diseases (gynecology)	100	100	100	100	100	100
Osteoporosis	86.66	86.12	84.05	84.32	87.26	84.33
Endocrine diseases	81.28	85.22	87.05	82.70	86.38	81.89
Diseases of the blood and hematopoietic system (hematology)	60.00	69.23	66.67	81.25	83.87	67.65
Rheumatic diseases (rheumatology)	66.13	65.93	65.29	65.04	64.96	64.67
Upper respiratory tract diseases (ENT)	61.08	61.16	61.62	62.94	62.53	61.93
Skin diseases (dermatology)	59.56	59.15	60.93	57.65	60.61	61.81
Obesity	58.47	58.21	56.59	54.39	58.99	60.57
Diseases of the nervous system (neurology)	59.11	59.79	59.85	59.64	59.67	60.42
Diseases of the digestive system (gastroenterology, hepatology)	59.11	57.79	59.53	58.94	60.22	58.97
Diseases of the lower respiratory tract (pulmonology)	56.95	57.53	56.79	57.11	57.91	58.38
Orthopedic and traumatic diseases (orthopedics)	59.26	58.25	57.32	56.33	57.34	57.21
Kidney and urinary tract diseases (nephrology and urology)	53.97	50.74	52.11	46.06	49.80	52.69
Peripheral vascular disease	54.46	55.59	56.10	57.16	57.21	51.25
Diabetes (diabetology)	52.09	52.35	49.43	49.23	49.79	50.37
Cardiovascular diseases and hypertension (cardiology)	51.31	50.93	49.95	50.21	50.00	49.39

Notes: Ordinal variable: from the highest proportion of cases in 2023.

Due to the COVID-19 pandemic (first cases were observed in Poland in early March 2020), the 2020/2021 period is difficult to analyze. Administrative restrictions (the hard 'lockdown', i.e. a ban on leaving home and a ban on movement) automatically reduced the number of patients using spas (Table 3). The gradual withdrawal of these regulations combined with the strict introduction of pandemic procedures allowed patients to return to spa treatment.

Table 3. Dynamics of the proportion (%) of patients to whom health services were provided in spas by gender and specific medical problems relative to 2018 (100%) – CSO

Specification of health problems (area of medical intervention)	2018		2019		2020		2021		2022		2023	
	M	W	M	W	M	W	M	W	M	W	M	W
Diseases of the nervous system (neurology)	100	100	101.67	104.58	54.74	56.43	70.24	71.79	110.61	113.19	119.28	125.96
Osteoporosis	100	100	114.81	109.70	77.78	63.12	85.19	70.53	100	105.51	129.63	107.41
Rheumatic diseases (rheumatology)	100	100	102.21	101.30	55.14	53.13	71.11	67.77	109.30	103.79	121.94	114.33
Diseases of the blood and hematopoietic system (hematology)	100	100	100	150.00	41.67	55.56	25.00	72.22	41.67	144.44	91.67	127.78
Orthopedic and traumatic diseases (orthopedics)	100	100	99.63	95.68	55.33	51.10	62.36	55.30	86.94	80.36	90.60	83.30
Diabetes (diabetology)	100	100	92.41	93.38	47.69	42.86	59.58	53.12	82.94	75.63	81.92	76.46
Skin diseases (dermatology)	100	100	97.00	95.54	49.55	46.92	56.44	54.01	82.60	78.39	80.49	74.55
Peripheral vascular disease	100	100	98.23	102.82	54.90	58.66	51.36	57.32	71.91	80.40	81.06	71.28
Diseases of the lower respiratory tract (pulmonology)	100	100	92.40	94.56	44.68	44.35	51.37	51.68	74.46	77.38	68.82	72.93
Skin diseases (dermatology)	100	100	87.73	86.22	48.28	51.11	62.52	57.78	80.20	83.78	65.63	72.11
Obesity	100	100	94.40	93.37	51.80	48.16	68.97	58.42	74.21	76.02	65.80	71.79
Upper respiratory tract diseases (ENT)	100	100	90.51	90.81	40.11	41.03	42.96	46.48	61.51	65.38	56.33	58.48
Kidney and urinary tract diseases (nephrology and urology)	100	100	100.29	88.10	40.86	37.91	59.14	43.07	71.65	60.61	56.98	54.11
Endocrine diseases	100	100	60.71	80.62	22.62	35.01	38.10	41.96	36.90	53.93	46.43	48.35
Diseases of the digestive system (gastroenterology, hepatology)	100	100	90.95	86.14	41.83	42.57	43.03	42.74	54.57	57.15	47.12	46.84
Female diseases (gynecology)	100	100	-	93.65	-	47.01	-	44.37	-	50.11	-	44.67

Notes: Ordinal variable: from the highest total of indicators in 2023.

The number of spa patients remained at a similar level between 2018 and 2019, driven by the number of places available in spas (investments in new patient places in spas are expensive and depend on staff availability). The pandemic caused a decrease in the number of male (48.46%) and female (48.43%) patients in 2020. In 2021, there was a gradual increase in the use of spa capacity: 56.49% for men and 55.53% for women. Between 2022 and 2023, the number of male and female patients increased respectively to approx. 80% (Table 3).

The smallest medium-term (2018-2023) patient attrition was observed within hematology for women and osteoporosis services in the case of men (Table 4). The dynamics of services related to neurology remained at a similar level in the medium term (around 91% for both genders). The 61-75 age group accounts for 50.42% of all patients using publicly-funded spa treatment, the second age group using these services being those aged 41-60 (25.07%).

Table 4. The share (%) of patients in each age group participating in spa treatment in 2023

Specification of health problems (area of medical intervention)	2018	19-40	41-60	61-75	76-80	81 and older
Osteoporosis	18.69	3.81	13.81	57.14	15.71	9.52
Cardiovascular diseases and hypertension (cardiology)	0.15	0.49	10.19	71.11	11.85	6.22
Peripheral vascular disease	0	1.07	20.64	60.26	12.34	5.69
Kidney and urinary tract diseases (nephrology and urology)	2.59	4.32	32.42	45.10	9.94	5.62
Diseases of the digestive system (gastroenterology, hepatology)	0.79	4.47	28.51	53.33	8.16	4.74
Orthopedic and traumatic diseases (orthopedics)	19.61	7.72	24.22	37.03	7.15	4.27
Rheumatic diseases (rheumatology)	0.16	0.66	17.33	70.03	8.18	3.64
Endocrine diseases	2.40	4.79	24.15	56.09	8.98	3.59
Diabetes (diabetology)	0.60	1.72	13.29	70.56	10.42	3.42
Diseases of the lower respiratory tract (pulmonology)	18.69	1.75	15.16	53.50	7.53	3.37
Diseases of the blood and hematopoietic system (hematology)	0	0	46.67	40.00	10.00	3.33
Skin diseases (dermatology)	0.32	7.56	31.30	51.37	6.62	2.84
Diseases of the nervous system (neurology)	0.24	2.37	27.35	61.98	5.61	2.44
Female diseases (gynecology)	0	12.38	55.60	26.72	2.95	2.36
Upper respiratory tract diseases (ENT)	39.27	2.84	19.30	33.38	3.44	1.77
Obesity	48.62	8.68	21.12	19.13	2.17	0.27

Notes: Ordinal variable: from the highest proportion of medical problems in the oldest patients.

Discussion

For centuries, people in search of balance between the body and the soul have travelled to places where they could find solace, relaxation and help. The trend of *"sanus per aquam"* was followed as early as in antique times. Greeks and Romans used medicinal and herbal treatments and baths, believing that they would keep them in good health, guarantee fortitude and longevity [12].

Poland's spa-related infrastructure was used between 2018 and 2019 to a degree similar to previous years, with a noticeable upward trend. We believe that this was a result of an increasing popularity of a healthy lifestyle. At the same time, the number of patients in Germany was increasing at a rate of approximately 5 per cent per year, approx. 4 per cent per year in Spain, approx. 3-5 per cent in the USA and approx. 4 per cent in Japan [21,22].

The United States assigned approximately $4.4 trillion to resort treatment in 2019, and the amount is estimated to increase to as much as $6 trillion in 2025. Unfortunately, the proportion of patients using spas has dropped significantly with the advent of the COVID-19 pandemic, lockdown and the travel ban. In many European countries, including Poland, sanatoriums have been turned into life-saving hospitals for people infected with coronavirus [22].

The number of people receiving spa treatment in Poland in 2020 decreased by approximately 50-70% compared to 2019. In Spain, the decrease was about 65%, about 60% in Germany, about 70% in the Czech Republic, about 50-60% in the USA, about 50% in Japan and about 55% in South Korea. However, 2021 saw a gradual 20-40% increase in patients' interest in spa treatment compared to 2020, mainly due to the emergence of new post-COVID rehabilitation programs. The increase amounted to 35% in Germany, about 40% in the Czech Republic, about 30% in Spain, about 25% in the USA, and about 30% in Japan and South Korea [21,22]. The above increases have not restored its pre-pandemic state. The increase in spa treatment in the Czech Republic in 2021 was 30% less than before the pandemic outbreak [23].

The year 2022 saw a revival as it became a fashionable trend to travel to spa destinations again. In European countries such as Hungary and Serbia, vouchers for therapeutic stays, financed by the health fund, have begun to be used to re-energize spa tourism [24].

According to the CSO, 819,900 patients benefited from spa treatment in Poland in 2022. Although this is nearly 37% more than the year before, it is still less than before the pandemic. For example, 858,000 patients stayed in spas in 2019. In its annual "Health and Health Care in 2022" report, the CSO summarized spa treatments, demonstrating that hospitals and sanatoriums had a total of 45,600 beds at the end of December 2022, i.e. 0.3% more than in 2021 and 9.3% more than in 2012. In addition, 42,000 of the recorded 2022 patients received inpatient treatment. This is 40% more than in 2021 and 89.6% more than in 2020, the first year of the COVID-19 outbreak. Of these, 702,100 patients were Poles, while there were 39,900 foreign patients, twice as many (by 107.1%) as in the previous year. Foreigners accounted for 5.4% of the total number of patients treated in hospitals and sanatoriums [21,22].

In order to respond to new trends and to re-energize medical tourism, Polish spas and treatment hospitals are being transformed into attractive health centers. In addition to therapeutic practices, visitors are offered tourist, sporting and cultural attractions. These resorts, due to their environmental assets, can confidently compete with foreign spas. Combined with healthy lifestyle trends, Polish medical tourism is constantly evolving. Para spa treatments geared towards the cosmetic and aesthetic aspects of the human body and weight loss are becoming popular. Amenities on offer at the spas include beauty services, hairdressers, cafés, libraries, Nordic-walking classes, dance evenings etc.

To increase the attractiveness of stays, many spas organize original cultural events such as the International Chopin Festival in Duszniki-Zdrój, the International Moniuszko Festival in Kudowa-Zdrój, the Jan Kiepura International Festival of Arias and Songs in Krynica-Zdrój, the International Festival of Organ and Chamber Music in Kamień Pomorski, the Piano Festival in Nałęczów, the H. Wieniawski Violin Festival in Szczawno-Zdrój, the International Early Music Encounters in Świeradów-Zdrój, the International K. Jamroz Music Festival, Summer with Chopin in Busk-Zdrój, International Roma Festival in Ciechocinek, Augustowskie Lato Teatralne (Augustów Theatre Summer), International Festival of Spa Music, the Festival of Amateur Films in Polanica-Zdrój, and the International Song Festival in Sopot.

In addition, aromatherapy, chromotherapy, acupuncture, sound therapy, infrared saunas and a wide range of relaxation massages are becoming very popular.

Statistics show that more and more foreign patients are arriving at Polish spas each year to benefit from wellness treatments. Modern travel agencies specializing in organizing offers for therapeutic, slimming or Wellness&SPA stays are emerging. There were 267,900 fully paid patients in 2022, i.e. 30.3% more than in the previous year, of which 228,000 were Poles [21].

Throughout Europe and also in Poland, therapeutic stays do not only include package stays. Visits for a weekend or for a few days are becoming fashionable and attractive. Their aim is to relax, satisfy cognitive passions and counteract professional burnout. Joanna Góra concludes: "(...) as environmental awareness increases, there

is an increase in trips to spas and spa regions distinctive in terms of environmental assets, combined with the use of ecological tourism infrastructure" [25].

According to the European Spa Association, a further increase in the popularity of spas of around 25% was seen in 2022. These figures show an increased interest in this form of treatment among patients. According to data from the CSO, there were 257 spa treatment facilities at the end of 2023, which received 903,800 patients during the year, including 819,200 inpatients. The 48 inpatient rehabilitation facilities provided medical care to 73,000 patients. Of all the inpatients treated in Poland, 4.9% were foreigners. The vast majority (95.1 %) of foreigners stayed in spas located in three voivodeships: Zachodniopomorskie, Dolnośląskie and Pomorskie. In addition, 38 million spa treatments were provided in 2023 (8.3% more than in 2022) [26].

These basic statistics are only the most general description of the complex phenomenon of enhancement of the population's health with the use of climatic and other spa assets (mineral waters, attractiveness of the landscape, culinary specificities, cultural offers, etc.). However, they do not include information on the quality of the services provided in terms of rehabilitation, therapy and health promotion. As we have already demonstrated in previous studies, the fundamental criterion is to optimize not only medical interventions, but also the measurement of the progress of rehabilitation based on the model of the International Classification of Functioning, Disability and Health [27]. The age of the residents is a secondary criterion, although different proportions of problems depending on the age of the patients are clearly visible (Table 4).

Such diversity, combined with the distinctiveness of the material resources of specific spas, is nevertheless possible to describe in terms of simple quantitative indicators. It is equally straightforward to define common quantitative standards for spa treatment. The most obvious of these are the limited number of days of spa treatment, the number of treatments and other medical services, and free time available to the resident. The qualitative aspect refers to both material factors (support with the use of an apparatus, quasi-apparatus, pharmacological, food, etc.; availability of AI-based devices for safe self-care) and subjective factors (primarily formal staff qualifications, empathy, creativity, kindness, responsibility).

Such perception of the spa treatment phenomenon leads us to reflect on modern complementary medicine [28], preventive medicine [29] and the new applied science INNOAGON (innovative agonology), dedicated to enhancing all dimensions of health and survival [30]. Focusing on a disease or even several diseases that qualify for spa treatment at a particular facility does not rule out the risk of spending the rest of one's life in as a disabled person or even dying prematurely – and vulnerability to such events is not limited by age. We are talking about unintentional falling, colliding with an object in motion or with a vertical obstacle, as well as becoming the target of physical aggression of extreme severity [31-33].

Unintentional falls are the clear leader among these risks [34]. While it is possible to minimize such risks to some extent, every independently moving human being is bound to fall at least once in his or her lifetime, so it happens at any stage of ontogenesis [32,33]. Spa services are not age-limited, so a multi-day stay is a good time to diagnose and reduce the susceptibility to body injuries during the fall of each patient [31-33]. If a center specializes in even just one category of spa treatment services, it makes all the more sense to implement innovative programmes, the effectiveness of which has been repeatedly verified by INNOAGON experts [35-37] or specialists in the countries of the Far East [38]. These are important recommendations given the declining interest in daily physical exercise in Poland [39].

Conclusions

Established numbers of health problems and the share of people (by gender) covered using specialist spa treatment services in annual cycles, together with knowledge of the material resources of individual centers, provide a preliminary basis for modifying this area of medical intervention. A prognostic factor for increasing

the effectiveness of this area of public health is a complementary approach, a key element of which is the ability to influence the qualitative components of the services provided.

The epidemiological data from the 2018-2023 period, i.e. including the post-pandemic period, provide a set of indications justifying the indispensable increase in the importance of preventive medicine in daily clinical practice as well as during spa treatment.

Continuing to treat diagnosed illnesses and health risks in a spa setting does not preclude the implementation of preventive programs related to personal safety and attractively combining such benefits and services with cultural and leisure offers for tourists. A seemingly separate development opportunity is the opening up of Polish spas to health-oriented business tourism.

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