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## Health and its significance in the modern concept of wellness and spa

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### Abstract:

The aim of the study is to present selected issues related to health that are significant in the modern concept of wellness and spa.

The World Health Organization has adopted the so-called positive definition of health, which encompasses it as a state of complete physical, mental, and social well-being, rather than merely the absence of disease or infirmity. Wellness is one of the contemporary approaches to health related to quality of life and actions for health (aspiring towards wellness). On the other hand, spa is an idea of a holistic approach to health, where the harmony of mind and body is to be ensured through the use of relaxing, cosmetic, and biological renewal treatments, often involving water. Spa centers combine relaxation with the

care for psychophysical health. The purpose of these centers is to improve health, well-being, and appearance. These aspects are extremely important in the holistic understanding of health.

**Keywords:** health, spa treatment, wellness, spa

### **Health in a definitional perspective**

The term 'health' is not unambiguous and has been defined differently over centuries depending on the culture. J. Domaradzki believes that the term 'health' harbors something mysterious, as evidenced by attempts to positively define it that are met with misunderstanding. For many, the more significant concept is the idea of disease [1]. B. Wojnarowska points out that defining health is inseparable from defining disease and has been ongoing for over 2,000 years. In European medicine, the definition of disease began with its 'father,' Hippocrates of Kos (460-377 BCE). The concept of disease created by Hippocrates, as a disturbance of bodily functions, despite various modifications, persisted until the 19th century. Meanwhile, health was mainly perceived as the absence of disease. This interpretation of health has endured in common understanding to the present day [2].

"When reviewing the literature, various typologies of health can be found. A noteworthy distinction is made between professional and everyday definitions of health. An example of a professional definition of health is the one adopted by the World Health Organization (WHO), known as the positive definition of health, which conceives it as: 'a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity' [2, 3]. In the WHO definition, attention was drawn to health as a positive state (well-being), its multidimensionality (physical, mental, and social dimensions), and the importance of subjective health assessment. In subsequent modifications, the definition of health was expanded to include the spiritual dimension. Health perceived in a positive light is primarily associated with 'good quality of life, vitality, physical fitness, human potential, development, the ability to lead an active and creative life, enjoying life, optimism, happiness, etc.' [2]. The outcome of framing health as a positive category includes terms such as well-being and wellness. The concept of well-being emerged in scientific terminology primarily due to the

development of positive psychology and encompasses both emotional reactions to events and cognitive judgments regarding satisfaction and fulfillment. It relates to the subjective assessment of health, meaning the manifestation made by an individual [2, 4, 5]. The model of subjective well-being comprises the following three categories: psychological well-being, emotional well-being, and social well-being. Psychological well-being, also known as personality well-being, concerns the positive functioning of an individual. It is described in six dimensions such as self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, positive relationships with others. Social well-being is determined by dimensions such as societal acceptance, social actualization, social contribution, social coherence, social integration. Emotional well-being pertains to an individual's sense of happiness and satisfaction in life, as well as maintaining a balance in experiencing positive and negative feelings over an extended period [5, 6]."

### **Review of the concepts of wellness and spa development**

The concept of health adopted by the WHO includes the notion of 'wellness,' as presented by H. Müller and E. Lanz-Kaufmann [7]. It first emerged in 1959 in the United States. American physician H. Dunn laid the groundwork for the wellness concept, stating that it is 'a good, high, equal sense of well-being' [8]. The term 'wellness' comes from the English words 'wellbeing,' meaning being in good shape/good health, and 'fitness,' meaning being in good physical condition. However, there is no equivalent in the Polish language, and it is translated as full potential [2]. According to Wojnarowska, the term 'wellness' is one of the contemporary approaches to health related to quality of life and actions for health (aspiring towards wellness) [2]. Referring to the concept of wellness, Słońska defines full potential as 'an optimal state in both the dimension of functioning in everyday life and perceived life satisfaction, achievable by an individual at a given moment in life and under the conditions in which they live' [9]. According to this definition, wellness is a lifestyle aimed at ensuring well-being, bringing harmony between the body, mind, and spirit. Research conducted in Western Europe indicates that wellness is associated with a healthy lifestyle through exercise, relaxation, and a proper diet. Wellness is multidimensional, touching on many aspects, and importantly, it addresses the psychological, emotional, intellectual, social, financial, and physical needs of individuals [10, 11].

The term 'wellness' is closely connected with the term 'spa.' The name 'spa' comes from the Latin abbreviation 'sanus per aquam' - 'healthy through water.' However, the etymology of the word 'spa' can also be traced to the Latin 'spagere,' meaning 'to sprinkle' or

'moisten,' or the Walloon 'espa' (fountain) [12]. This name is also borne by a Belgian spa located in the Ardennes, famous for its healing hot springs known since the 14th century. The roots of spa can be traced back to antiquity. Healing baths were recognized in ancient Greece even before Hippocrates. One of the most well-known centers with healing springs was the sanctuary of Asclepius in Epidaurus - the god of the medical arts, the son of Apollo [12]. The heyday of hydrotherapy occurred during the Roman Empire. At that time, resorts with warm springs, called 'spas,' enjoyed extraordinary popularity. Warm water sources were used in specially constructed buildings called 'thermae.' They usually had interesting architecture, artistic interiors adapted not only for baths but also for other forms of gymnastics, relaxation, and socializing. Resorts were scattered throughout the entire Empire, and their development paralleled the territorial expansion of the empire [12]. Initially, warm spring waters were used for hygiene purposes, later for recreational, social, and health-related purposes. Water was highly valued - baths in warm spring waters helped with many ailments. There was a flourishing of traditional therapeutic methods using water, and some of them, after gaining scientific foundations, are still applied.

Significant contributions to the development of water treatment methods were made, among others, by the Bavarian priest S. Kneipp (1821-1897), who developed his own hydrotherapy system. Kneipp's methods are still quite widely used in Germany, the Czech Republic, and Slovakia [13]. Another figure in water treatment was V. Prissnitz (1799-1851) from Grafenberg. Prissnitz treated using cold water pourings, cold compresses, wrappings, and washing the body with cold water. He is primarily known for introducing water jets and water whips [13]. Similarly, J. Żniniewicz (1872-1952), a physician from Poznań, was interested in hydrotherapy. He opened his own hydrotherapy facility and developed an innovative water treatment method. It involved the selective pouring of body parts with water gradually decreasing in temperature based on the patient's sensations. He selectively poured water on the head, neck, and spine, areas where the central nervous system is located [13].

The flourishing of spas in Poland occurred after World War II, although the foundations date back to the 17th century when many health resorts were established in Poland that are still associated with health and relaxation today (e.g., Krynica Zdrój, Ciepłocinek, or Duszniki Zdrój). I. Ponikowska points out that in the past, the term 'spa' was unequivocally associated with health resort therapy, but nowadays it denotes recreational, leisure, and cosmetic activities. In the balneological community and international societies, efforts have long been made to standardize terminology in English in the field of balneology and health resort therapy, in which Poland has also played a significant role. Consensus was reached at

the 26th Balneological Congress in Nałęczów regarding the use of the term 'health resort therapy' instead of 'spa' in English. It was established that the best term for health resort therapy would be 'Thermal Medicine.' This term is derived from ancient Greek, where 'Therma' means a source [14]. The European Spas Association (ESPA) defines spa as a source of mineral waters and points to a place or locality where natural medicinal waters are used for health improvement [15]. On the other hand, the International Spa and Fitness Association (ISPA) considers spa as a place where active and prolonged use of natural and health-promoting elements in a specific environment occurs for some time [15]. As R. Szatkowski points out, 'spa is the idea of a holistic approach to health, where the harmony of mind and body is to be ensured through the use of relaxing, cosmetic, and biological renewal treatments, often involving water' [16]. Spa centers combine relaxation with the care for psychophysical health. The purpose of these centers is to improve health, well-being, and appearance. These aspects are extremely important in the holistic understanding of health [17]. Spa facilities can vary from one another.

According to the International Spa Association (ISPA), the following types of spas can be distinguished:

- Day Spa - also known by other names such as urban spa or beauty salon, available during the day offering general care and relaxation treatments.
- Destination Spa - resorts located in places with exceptional tourist values, providing beauty and relaxation treatments improving overall psycho-physical condition, also offering healthy cuisine, educational programs focusing on wellness and a healthy lifestyle.
- Resort Spa - hotels equipped with spa facilities offering a wide range of spa services and additional activities such as horse riding, tennis, etc.
- Medical Spa (also known as Med Spa or Medi Spa) - facilities supervised by medical staff specialized in various therapeutic, rehabilitation, aesthetic medicine, or plastic surgery procedures. These centers also provide typical spa treatments.
- Mineral Springs Spa - centers using natural thermal springs or seawater in hydrotherapy.
- Club Spa - facilities offering treatments to enhance overall physical fitness, often located within fitness clubs.
- Business Spa - establishments catering to the corporate sector, offering good hotel services and facilities for organizing conferences and training. They provide beauty and relaxation treatments to enhance overall psycho-physical condition.
- Cruise Ship Spa - located on cruise ships, providing general beauty and relaxation treatments [18, 19].

As Kasprzak and Mańkowska indicate, spa centers make use of achievements in scientific physiotherapy and medical spa treatments [17]. These centers offer numerous treatments not only aimed at improving health and well-being but also catering to overall mental well-being. Additionally, they offer strictly commercial procedures aimed at enhancing appearance.

### **Characteristics of treatments applied in health resort therapy centers as well as wellness and spa facilities – selected issues**

As stated by Ponikowska and Ferson, the most common specific therapeutic methods utilized in health resort therapy centers and spas are [21]:

- Balneotherapy and peloidotherapy - treatment with mineral waters, therapeutic gases, and mud therapy;
- Climatotherapy - treatment involving climate and natural healing factors;
- Hydrotherapy - treatment using water;
- Thermotherapy - treatment involving thermal energy;
- Kinesiotherapy - treatment using physical exercises.

### **Balneotherapy and peloidotherapy - treatment with mineral waters, therapeutic gases, and peloids**

In the field of balneotherapy, besides therapeutic baths, it also includes the following:  
Krenotherapy: drinking therapy involving the consumption of mineral waters.  
Inhalations: aerosol therapy or body cavities rinsing with mineral water, referred to as irrigations.

Due to the presence of various types of therapeutic waters, they find broad applications in treating various conditions. Saltwater baths are recommended for individuals suffering from skin diseases such as psoriasis, degenerative joint disease, peripheral circulation disorders, rheumatic and post-traumatic diseases. Due to their unique properties, saltwater baths improve blood circulation in the dermis and internal organs, reducing nervous excitability [21].

Carbonic acid baths, characterized by better properties for stimulating peripheral circulation, are mainly due to the lipophilicity of the dissolved carbon dioxide in these therapeutic waters. Literature indicates that this gas can increase skin blood flow by up to 600%. Carbonic acid baths are particularly recommended for individuals with hypertension, heart diseases, and lower limb ischemia [21].

Sulfur-carbon baths are known for their keratolytic and keratoplastic properties. They also increase the synthesis of chondroitin sulfate, making them beneficial for individuals with

hypertension and dermatological conditions such as psoriasis, acne, and occupational dermatoses [21].

Despite numerous advantages, balneological treatment is generally contraindicated in cases of psychiatric disorders, alcoholism, arrhythmias, epilepsy, balance disorders, the presence of chronic wounds, and allergies to the components of therapeutic waters [22].

Krenotherapy involves the internal use of therapeutic waters in the form of drinking. In Poland, diluted brine, known for stimulating gastric juice secretion, reducing pH (used in patients with hypochlorhydria), and supporting thyroid gland function, is used for krenotherapeutic treatment. Drinking brine is contraindicated in individuals with gastric and duodenal ulcers. Besides brine, alkaline waters (recommended as a supportive form of treatment for gastric and duodenal ulcer), hypotonic waters with low mineral content (used in the treatment of urolithiasis and chronic inflammation of the stomach and intestines), iron-rich waters (used in the treatment of anemia), and sulfur-hydrogen sulfide waters (used, among others, in heavy metal poisoning) are used in krenotherapy [21].

Another type of balneotherapy in health resort treatment is inhalation, most often performed using saline waters. The beneficial effects of inhalation have been confirmed in patients with bronchial asthma and individuals with chronic bronchitis in the course of chronic obstructive pulmonary disease (COPD) [23].

Peloidotherapy (from the Greek "pelos" – mud) uses natural organic-mineral raw materials, with mud (peat) being the most common representative. Mud is a type of therapeutic peat with a high degree of humification. Due to the presence of humic acids, estrogens, enzymes, and microelements, mud exhibits anti-inflammatory, bactericidal, analgesic, regenerative, cleansing, and warming properties [21]. Applied in the form of compresses, baths, sitz baths, and tampons, mud therapy is used to treat various rheumatic diseases (degenerative joint and cartilage diseases, extra-articular ossification, ankylosing spondylitis), musculoskeletal disorders (post-injuries to bones and joints, chronic inflammation of bones, heel spurs, lower back pain), neurological diseases (paralysis, paresis, Heine-Medin disease, sciatica, traumatic damage to peripheral nerves), internal diseases (liver, bile ducts, respiratory system), gynecological diseases (inflammatory conditions of appendages, vagina, and cervix) [24]. Mud treatments put a strain on the circulatory and respiratory systems; hence, they are contraindicated in coronary heart disease, hypertension, venous disease, and in the presence of vascular changes in the eye's retina [21].

### **Climate therapy - treatment using climatic and natural healing factors**

The term climate therapy refers to the use of the natural environment for therapeutic purposes [21]. Specific forms of this type of therapy include heliotherapy (treatment with sunlight), arotherapy (air baths), thalassotherapy (encompassing all forms of therapeutic treatments possible in coastal areas, including sea baths, inhalations with sea aerosol), as well as subterraneotherapy (therapeutic use of the microclimate of salt chambers) [17, 21].

### **Hydrotherapy – treatment with household water**

Hydrotherapy is based on subjecting the body to the influence of thermal, hydrostatic, and hydrodynamic stimuli. It includes full baths—cool, cold, hot, overheating—and baths with underwater massage and other specific forms of hydromassage. Cool or cold full baths (at a temperature of 8-20°C) stimulate metabolism and are recommended as supportive therapy for obesity but are contraindicated in patients with serious circulatory, cardiac, and vascular diseases, rheumatic diseases, anemia, and nerve inflammation. Warm baths (38-40°C) are used in states of increased nervous excitability, insomnia, and some skin conditions. A specific type of hydrotherapeutic treatment is the bath for upper or lower limbs with a rising temperature according to Schweningera-Hauffe—during this procedure, the water temperature gradually increases from 35 to 42°C. Graduated temperature baths, as noted by Mika and Kasprzak, have a beneficial effect on heart function and lower blood pressure [26]. Full baths are not recommended for patients with circulatory failure. Underwater massage baths include classical underwater massage (hydromassage), jet showers, and vortex baths. Underwater massage causes a vascular reaction at the site of the stimulus and redistributes venous blood from peripheral parts of the body to the heart [21]. Vortex baths involve underwater massage of the upper or lower limbs. By changing the temperature and the swirling movement of water, they increase blood and lymph flow, contributing to the reduction of edema, and are used in patients after episodes of venous thrombosis and in rheumatic diseases. Various types of showers have effects similar to classical massage—they increase tissue blood flow and lymphatic and venous blood drainage. The Scottish hose is a special type of shower characterized by varying water temperature. Specific indications for shower treatments include muscle stiffness, myalgia, muscle contractions, post-traumatic conditions, rheumatic diseases in remission, Fontaine stage I and II lower limb ischemia, diabetes, and obesity [25]. General contraindications for showers and intensive forms of hydromassage include circulatory diseases and advanced age [25].



### **Thermotherapy - the treatment using thermal energy**

Thermotherapy is based on the use of thermal energy acting on the human body through convection and conduction [17]. Heat induces a local reaction in the body by dilating blood vessels, leading to increased oxygenation and nourishment of tissues. Recent reports also indicate a connection between local thermotherapy and increased muscle strength and skeletal muscle capillarization [27]. The systemic action of heat activates thermoregulatory mechanisms, affecting, among other things, increased sweating, increased metabolism, decreased muscle tension, and synovial fluid viscosity.

### **Kinesiotherapy - the treatment using physical exercises**

As Milanowska states, the essence of kinesiotherapy lies in the use of movement as a therapeutic means [28]. The primary goal of this therapeutic method is to restore the total physical fitness of an individual or reduce the degree of disability resulting from chronic illness. The origins of kinesiotherapy date back to ancient times. Hippocrates is attributed with the authorship of the maxim: "All medical knowledge has two mighty pillars on which it rests. They are physical exercises and diet" [29]. Professor Wiktor Dega is recognized as the creator of the Polish model of medical rehabilitation. He was the first to introduce movement as a therapeutic measure to clinics and hospitals after World War II. There are numerous kinesiotherapeutic methods, including individual and group exercises, passive and active exercises, exercises performed in water (known as aqua aerobics), corrective and compensatory gymnastics. Exercises can also be done outdoors, in an organized or individual form, then referred to as terrain therapy. Physical effort, thanks to its multidirectional impact on the human body, aligns with the concept of functioning in SPA centers, which undertake health-promoting activities associated with a holistic approach to health [17].

Moreover, it is worth mentioning non-specific methods, including diet therapy, psychotherapy, health education, pharmacotherapy, phytotherapy (herbal treatment), as well as numerous cosmetic procedures and aesthetic medicine.

### **Summary**

In the presented study, a review of available source literature was conducted to systematize the concept of health in the research area relevant to the contemporary concept of wellness and spa. Selected issues from the history of the development of wellness and spa were presented, as well as a characterization of the applied treatments in health resort facilities, wellness, and spa.

It can be stated that wellness is a lifestyle aimed at ensuring well-being, bringing harmony between body, spirit, and mind, while spa is the idea of a holistic approach to health, where the harmony of body and spirit is ensured through the use of relaxing, cosmetic, and biological renewal treatments.

In summary, the article analyzes the significance of health in the context of wellness and spa, presenting their historical evolution and the diversity of offered methods for treatment and relaxation.

### **Author's contribution**

Conceptualization, EK and AB; methodology, EK; software, AB; check, EK and AB; formal analysis, EK; investigation, AB; resources, AB; data curation, EK; writing - rough preparation, EK; writing - review and editing, AB; visualization, AB; supervision, EK; project administration, AB; receiving funding, EK. All authors have read and agreed with the published version of the manuscript.

### **References**

1. Domaradzki J. O definicjach zdrowia i choroby. *Folia Medica Lodziensia* 2013;40(1):5-29.
2. Wojnarowska B. *Edukacja zdrowotna*. Wyd. Naukowe PWN. Warszawa. 2012.
3. Kulik TB, Latański M. *Zdrowie publiczne*. Wyd. Czelej. Lublin. 2002.
4. Czapiński J. *Psychologia pozytywna. Nauka o szczęściu, zdrowiu, sile i cnotach czło Wieka*. Wyd. Naukowe PWN. Warszawa. 2004.
5. Wojciechowska L. *Syndrom pustego gniazda: dobrostan matek usamodzielniających się dzieci*. Wyd. Instytutu Psychologii PAN. Warszawa. 2008.
6. Cieślińska J. *Poczucie dobrostanu i optymizmu życiowego kadry kierowniczej placówek oświatowych*. *Studia Edukacyjne*, Poznań 2013, 27, 95-112.
7. Müller H. Lanz-Kaufmann E. *Wellness tourism: Market analysis of a special health tourism segment and implications for the hotel industry*. *Journal of Vacation Marketing*. 2001;7:1.
8. Alejziak B. *Turystyka i rekreacja*. AWF Warszawa. 2014;2(11):72-81.
9. Słowska Z. *Zdrowie (w:) Encyklopedia socjologii*. Oficyna Naukowa. Warszawa 2004;4:354-359.
10. <http://e-spawellness.pl/wellness.php>; AP. Lubowiecki-Vikuk, *Spa i wellness – megatrend współczesnej turystyki zdrowotnej*, [w:] W. Gaworecki, Z. Mroczyński (red.), *Turystyka i sport dla wszystkich w promocji zdrowego stylu życia*. Wydawnictwo Wyższej Szkoły Turystyki i Hotelarstwa w Gdańsku. Gdańsk. 2008;539-547.

11. Szczepanowska E, Kaczor B, Pawełek K. Struktura oferty wybranych hoteli spa przy granicy polsko-niemieckiej – analiza porównawcza, [w:] A. Rapacz (red.), Wyzwania współczesnej polityki turystycznej. Problemy funkcjonowania rynku turystycznego, Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu. Wrocław. 2012;35-46.
12. Koreńczuk A. Turystyka Spa i wellnes, [w:] M. Boruszcak (red.), Wyższa Szkoła Turystyki i Hotelarstwa w Gdańsku, Gdańsk 2010, 111-152.
13. Ferenc T. Twórcy hydroterapii i balneoterapii w Europie w latach 1800-1952, [w:] Ponikowska I., Encyklopedia balneologii i medycyny fizykalnej oraz bioklimatologii, balneochemii i geologii uzdrowiskowej, Wyd. Aluna. Warszawa. 2015;217.
14. Ponikowska I. Encyklopedia balneologii i medycyny fizykalnej oraz bioklimatologii, balneochemii i geologii uzdrowiskowej, Wyd. Aluna, Warszawa 2015
15. <http://www.cabines.pl/artykuly/730/spa-wellness-w-polsce-i-na-swiecie.html> (dostęp: 12.10.2023)
16. Szatkowski R. SPA [w:] Ponikowska I. Encyklopedia balneologii i medycyny fizykalnej oraz bioklimatologii, balneochemii i geologii uzdrowiskowej. Wyd. Aluna. Warszawa. 2015;195.
17. Kasprzak WA, Mańkowska A. Fizykoterapia, medycyna uzdrowiskowa i SPA, PZWL. Warszawa. 2008.
18. Leśniak J. Ekohotel SPA jako element zrównoważonej turystyki w Szwecji. *Journal of Managment and Finance*. 2012;4:1.
19. Parzych K. Analiza wybranych aspektów turystyki spa. Studium przypadku hotelu spa „Dolina Charlotty” resort & spa. *Słupskie Prace Geograficzne*. 2012;9:109-119.
20. Herda-Płonka K. Krzemień G. Dydaktyka szkoły wyższej o profilu medycznym. PZWL. Warszawa 2016.
21. Ponikowska I, Ferson D. Nowoczesna medycyna uzdrowiskowa. Medi-Press. Warszawa 2009.
22. Nasermoaddeli A, Kagamimori S. Balneotherapy in medicine: A review, *Environmental Health and Preventive Medicine*. BioMed Central. 2005;10:177.
23. Kamińska M, Krusiec-Świdergoń B. Wykorzystanie terapeutycznych właściwości soli w profilaktyce i leczeniu chorób układu oddechowego (w:) Państwo i Społeczeństwo - Medycyna i Zdrowie Publiczne (red.) Milaniak I, Dębska G. Śląski Uniwersytet Medyczny w Katowicach. 2023;135-150.
24. Górka S, Pijanowska M. Zastosowanie borowiny w rehabilitacji i odnowie biologicznej. *Gerontologia Współczesna*. 4/2014 (2);176-179.
25. Taradaj J, Sieroń A, Jarzębski M. Fizykoterapia w praktyce. Wyd. Elamed. Katowice. 2010;(2), 55-61.

26. Mika T, Kasprzak W. Fizykoterapia. PZWL. Warszawa. 2006;67.
27. Kim K, Reid BA, Casey CA, et al. Effects of repeated local heat therapy on skeletal muscle structure and function in humans. *J Appl Physiol* (1985). 2020;128(3):483-492.
28. Milanowska K. Kinezyterapia. PZWL. Warszawa. 1985;7.
29. Zembaty A. Kinezyterapia. Wyd. Kasper. Kraków. 2002.