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# Spa Function Indicator as a Measure of Tourist and Healing Activity in a Spa

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# SPA FUNCTION INDICATOR AS A MEASURE OF TOURIST AND HEALING ACTIVITY IN A SPA

**Abstract**

The paper presents an authorial concept of a spa function indicator. The indicator construction is based on tourism and healing development level, defining spa function and spa potentials. The author also presents the result of applying the indicator showing a ranking of spa communes and explains the development of the spa town of Kolobrzeg in the years 1995–2011 in accordance with the used methodology.

**Keywords:** spa, health tourism, spa tourism, indicator

## Introduction

Spas are polyfunctional regions, which provide significant tourism destination with varied specialization. They include spa specialization, which results from the tourism and spa features function in the area of a wide range of therapeutic services from the field of spa treatment and wellness.

Literature specifies only the concept of the tourist function.[1] However, this function takes into account the diverse range of tourism activities, and thus the concept of the tourist function does not always adequately clarifies the role,

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[1] i.e. A. Matczak, *Funkcja wypoczynkowa strefy podmiejskiej Łodzi*. Zakład Geografii Miast i Turyzmu, Uniwersytet Łódzki, Łódź 1982, p. 6.

which is fulfilled in the analyzed area. One of the tourist area sub-functions, which often defies from the scientific framework definition of the tourist function is the spa function. It is, therefore, worth defining this specific tourist function, and then submit a proposal to measure the level of advancement, using the concept of spa function indicator, which is also the purpose of this article.

## 1. Spa function definition

*The spa function* is the socio-economic activity carried out in the spa, which is aimed at spa tourists and patients services, and which is fulfilled in the national economy and health care of the spa.[2] Expanding slightly the above definition, we can conclude that the *spa function* is the role of fully-related activities connected with spa treatment carried out there and tourism in the spa. Thus, this function takes into account the patients' activity in the area of tourism and tourists in the area of the spa.

Therefore, the development of the spa functions will be understood (widely understood) as development of tourist and therapeutic activity conducted at the spa, including the activities of Department of Spa Treatment (DST) in respect of provided spa treatment services and tourism services.[3]

Tourist function specialization in the spa is deliberately not limited to the therapeutic aspect (as a therapeutic function), since it is wider than of purely medical nature only. Contemporary DST are not only of therapeutic but also of tourist function, that is why there is the concept of the spa and not curative functions. This approach does not eliminate the application of *tourist-healing function* as a synonym, because, although it does not cover all the functions performed in the spa, it certainly mentions two main, i.e., tourist and treatment.

[2] A.R. Szromek, *Wskaźniki funkcji turystycznej. Koncepcja wskaźnika funkcji turystycznej i uzdrowiskowej*, Wyd. Politechniki Śląskiej, Gliwice 2012, p. 193.

[3] A.R. Szromek, *Przegląd wskaźników funkcji turystycznej i ich zastosowanie w ocenie rozwoju turystycznego obszaru na przykładzie gmin województwa śląskiego*, Zeszyty Naukowe Politechniki Śląskiej, Seria Organizacja i Zarządzanie, z. 54, Gliwice 2010, pp. 295–309.

## 2. Spa function measurement

Tourist function indicators which are used nowadays, describe the function of spa area only to a limited extent. It results from several specific features of the spa area and the fact of generalization of certain characteristics that describe the movement in the spa, in the phase of data collection and their analysis using traditional indicators of tourist function. Some of the numbers required for the calculations of the tourist function, e.g. a number of visitors, include tourists arriving on a specific area regardless of purposes of visits. Meanwhile, it seems reasonable to study the development of specific features of interest (e.g. spa) to determine the causes of changes in tourism development area function. By studying the function of spa, more attention will be paid to information on the number of both spa tourists and paratourists, parapatients and patients of DST[4] or even spa tourists and travelers in general, than only the number of generally categorized tourists coming to the spa.

It is also worth expanding the scope of spa function analysis outside the spa function development, taking into account other aspects of this phenomenon as well. Therefore, it seems that assessing the spa function, three aspects describing spa function development should be taken into account (Fig. 1). They are:

- Spa function development level,
- Spa function definition level,
- Spa potential.[5]

[4] A.R. Szromek, *Typologia turystów a typologia odwiedzających uzdrowisko – przegląd typologii*, in: Zeszyty Naukowe Politechniki Śląskiej, Seria Organizacja i Zarządzanie, z. 54, Gliwice 2010, pp. 291–304.

[5] Hence, the development of the tourist and therapeutic activity of the area spas to the concept of the development of the spa functions are not deliberately limited, as it would be unauthorized limitation, resulting not only from the threat of committing a tautology, but primarily from the fact that a broader understanding of the scope of the properties of the specific function. According to the author this includes not only the development of features, but also its definition and potential.

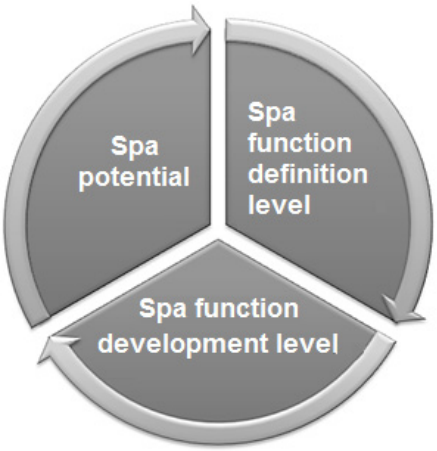


Fig. 1. Components of spa function indicator
Source: own study.

This approach is known in the literature through the concept of J. Warszyńska, who estimated the functions of tourist in a similar manner,[6] characterizing it by the degree of development and defining the tourist function and modification of this idea made by the author.[7]

The first category of spa function evaluation is the degree of development of the spa function, which can be determined by the number of patients' relationship to the number of permanent residents $S_{P/R}$.

$$S_{P/R} = \frac{P}{R}, \tag{1}$$

where:
$P$ – number of spa patients staying in a resort in the considered period,
$R$ – number of permanent residents in the period.

[6] J. Warszyńska, *Funkcja turystyczna Karpat polskich*, "Folia Geographica. Series Geographica – Oeconomica", 1985, 18:1, pp. 79–104.

[7] A.R. Szromek, *Dwuwymiarowy wskaźnik funkcji turystycznej i jego zastosowanie w ocenie rozwoju turystycznego obszaru*, in: Zeszyty Metodyczno-Naukowe AWF Katowice Nr 34, *Spoty i turystyka – aspekty społeczne, ekonomiczne i prawne*, J. Kantyka (ed.), Katowice 2012, pp. 127–142.

Defining spa features can be described as the degree of dominance of activity resulting from the spa function, so it is proposed to adopt the determinant of this aspect of the spa feature as the ratio of treatment activity in relation to the total tourist activities conducted within the area of the spa.

Due to the differences in length of stay in the spa it seems reasonable to take into account both the number of patients $S_{P/T}$ (2), accommodation granted by DST $DSTGB_{U/N}$ (3), and the accommodation in DST $S_{DSTB/M}$ (4). The average of these three indices convention is a degree of definition of the spa functions *S%* (5).

$$S_{P/T} = \frac{P}{T}100\% , \tag{2}$$

$$DSTGB_{U/N} = \frac{UDSTGB}{GB}100\% , \tag{3}$$

$$S_{MDSTB/M} = \frac{DSTB}{B}100\% , \tag{4}$$

$$S_{\%} = \frac{1}{3}\ S_{P/T} + DSTGB_{U/N} + S_{MDSTB/M} , \tag{5}$$

where:
*P* – number of patients staying in the spa in the considered period,
*T* – number of tourists staying in the spa in the considered period,
*B* – number of beds in the spa in the considered period,
*DSTB* – number of beds in DST in the considered period,
*DSTGB* – number of granted beds in DST in the considered period,
*GB* – number of granted beds in the spa in the considered period.

The third aspect, which should be taken into account in the measurement of the spa function is the ability of further development of this function. It seems that every obtained therapeutic profile is an additional resource potential of the area, because their number (*F*) can be a symptom of the capacity for further development.

A phased approach to a spa function indicator is presented in a diagram (Fig. 2).

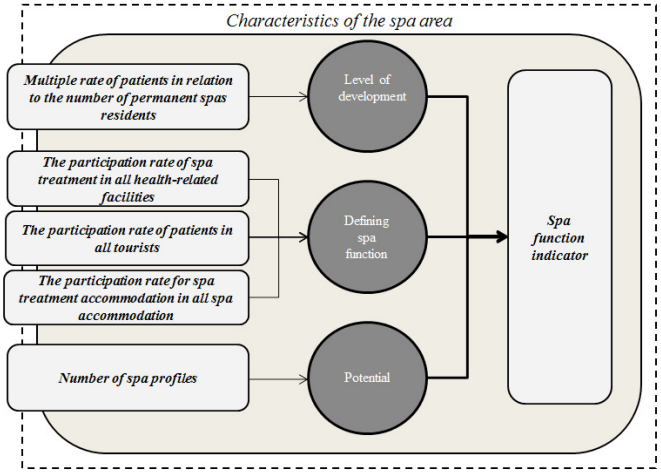


Fig. 2. Scheme of the calculation of the spa function development indicator
Source: own study

Synthetic measure of the spa function can be therefore determined using the following spa function indicator [8]:

$$S = \frac{P}{R} \cdot S_{\%} \cdot \mathrm{F} = \frac{P \cdot F \cdot S_{\%}}{R}. \tag{6}$$

## 3. The use of spa function indicator

In determining the specific terms of the criterion of ranking spa functions, CSO data from 2009 (collected in 2010) were used, from which it follows that the best developed spa area is located in Ciechocinek. The spa significantly dissociates the remaining spa communes (Table 1). This result is mainly due to the significant defining of spa function (because for each inhabitant of Ciechocinek there are 6.6 patients) and a large number of medicinal profiles.

It is worth noting, however, that another spas are Kolobrzeg and Krynica, which complement the three most developed resorts. The result of Krakow is also interesting, where a spa feature seems to be the least developed compared to other spa communes. This is, of course, from the fact that a large population

[8] A.R. Szromek, *Wskaźniki funkcji turystycznej...*, op. cit., pp. 193–200.

Static view illustrated in Table 1 recognizes the nature of the level of tourism development for a specified year. It seems, however, that dynamic look can support analysis of the development of individual spas in over several years. The study was expanded to include the value of the spa function indicator for Kolobrzeg in the years 1995–2011 (for the adjusted data).

Figure 3 shows the value of the indicator function of the spa for Kolobrzeg with the number of patients who came to Kolobrzeg each year. This statement is not accidental, as it is noted that the number of patients significantly affects the volatility of spa function indicator. This is particularly evident in relation to patients' residents of spas, which also is a mapping of spa function indicator. However, do not ignore the important role played by the definition of a spa function indicator.

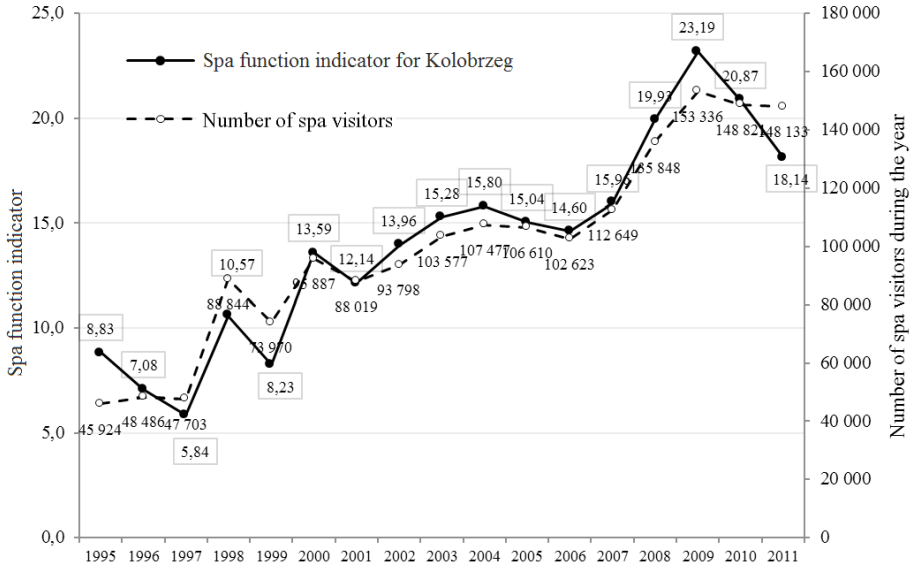


Fig. 3. Spa function Indicator of Kolobrzeg and the number of patients in 1995–2009
Source: own study.

It is worth noticing that the value of the spa functions of Kolobrzeg took upward trend, though not without corrections visible in 1995–1997, 1999, 2001, 2005–2006 and 2010–2011 (Fig. 4).

of Krakow and the presence of many other functions than that of a spa area.

Table 1

Calculation results of development of spa function indicator in 2009

| No | Spa commune | Level of spa function development | The share of spas among all locations (%) | The share of patients among all tourists (%) | The share of spa accomodation among all acommodation (%) | Defining spa function (%) | Profile numbers | Spa function indicators |
|---|---|---|---|---|---|---|---|---|
| | | P/R | SMDSTB/M | SP/T | DSTGBU/N | S | F | S |
| 1 | Ciechocinek | 6.6 | 77.1 | 74.6 | 93.2 | 81.6 | 13 | 70.33 |
| 2 | Kołobrzeg | 2.8 | 42.3 | 44.0 | 64.7 | 50.3 | 11 | 15.49 * |
| 3 | Krynica Zdrój | 2.6 | 29.0 | 24.7 | 52.8 | 35.5 | 14 | 12.75 |
| 4 | Uście Gorlickie | 1.6 | 52.9 | 57.1 | 84.7 | 64.9 | 11 | 11.14 |
| 5 | Iwonicz Zdrój | 1.2 | 57.4 | 65.1 | 86.3 | 69.6 | 12 | 10.41 |
| 6 | Szczawnica | 3.0 | 44.9 | 37.4 | 70.9 | 51.1 | 6 | 9.28 |
| 7 | Ustroń | 2.4 | 36.5 | 19.6 | 63.8 | 40.0 | 9 | 8.46 |
| 8 | Solina | 2.7 | 21.7 | 20.6 | 44.2 | 28.8 | 10 | 7.70 |
| 9 | Busko Zdrój | 0.7 | 84.8 | 76.8 | 95.3 | 85.6 | 11 | 6.60 |
| 10 | Muszyna | 1.3 | 31.4 | 47.7 | 64.4 | 47.8 | 10 | 6.23 |
| 11 | Goczałkowice | 0.6 | 90.8 | 89.8 | 99.1 | 93.2 | 9 | 5.45 |
| 12 | Inowrocław | 0.4 | 90.5 | 80.1 | 96.7 | 89.1 | 11 | 4.28 |
| 13 | Niemcza | 0.6 | 100.0 | 100.0 | 100.0 | 100.0 | 6 | 3.85 |
| 14 | Gołdap | 0.4 | 84.4 | 80.4 | 97.9 | 87.6 | 10 | 3.36 |
| 15 | Nałęczów | 3.4 | 86.4 | 68.2 | 93.4 | 82.7 | 1 | 2.77 |
| 16 | Szczawno Zdrój | 0.5 | 40.3 | 25.5 | 45.6 | 37.1 | 13 | 2.63 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 17 | Horyniec Zdrój | 0.8 | 78.5% | 72.8% | 88.9% | 80.1% | 4 | 2.49 |
| 18 | Świnoujście | 0.7 | 18.6% | 25.7% | 40.4% | 28.2% | 10 | 2.11 |
| 19 | Rabka Zdrój | 0.5 | 32.8% | 32.2% | 55.2% | 40.1% | 8 | 1.46 |
| 20 | Brześć Kujawski | 0.5 | 93.9% | 95.4% | 95.1% | 94.8% | 3 | 1.44 |
| 21 | Duszniki Zdrój | 0.8 | 20.5% | 9.2% | 24.5% | 18.1% | 8 | 1.12 |
| 22 | Połczyn Zdrój | 0.3 | 34.4% | 47.4% | 68.1% | 50.0% | 8 | 1.04 |
| 23 | Polanica Zdrój | 0.5 | 21.7% | 10.1% | 27.2% | 19.7% | 9 | 0.96 |
| 24 | Solec Zdrój | 0.4 | 35.1% | 16.1% | 37.0% | 29.4% | 6 | 0.69 |
| 25 | Rymanów | 0.2 | 26.9% | 20.5% | 75.9% | 41.1% | 9 | 0.64 |
| 26 | Sopot | 0.4 | 15.9% | 8.3% | 33.0% | 19.1% | 7 | 0.48 |
| 27 | Piwniczna Zdrój | 0.5 | 11.9% | 14.9% | 34.6% | 20.5% | 4 | 0.45 |
| 28 | Darłowo | 0.6 | 5.1% | 15.2% | 20.0% | 13.4% | 6 | 0.45 |
| 29 | Kudowa Zdrój | 0.3 | 11.6% | 6.5% | 12.5% | 10.2% | 10 | 0.35 |
| 30 | Ustka | 0.3 | 4.0% | 7.0% | 15.2% | 8.7% | 12 | 0.33 |
| 31 | Lądek Zdrój | 0.2 | 14.3% | 8.4% | 23.4% | 15.4% | 10 | 0.32 |
| 32 | Świeradów Zdrój | 0.5 | 8.3% | 4.9% | 5.2% | 6.1% | 7 | 0.23 |
| 33 | Augustów | 0.1 | 8.6% | 6.9% | 28.4% | 14.6% | 6 | 0.11 |
| 34 | Jelenia Góra | 0.0 | 15.6% | 7.0% | 21.8% | 14.8% | 7 | 0.05 |
| 35 | Kraków | 0.0 | 0.2% | 0.0% | 0.4% | 0.2% | 6 | 0.00 |

Source: own study.

* the table presents a summary compiled on the basis of CSO data for 2009 released in 2010, but in 2013 some of the data were corrected, thus the corrected rate for Kołobrzeg for 2009 is 23.10.

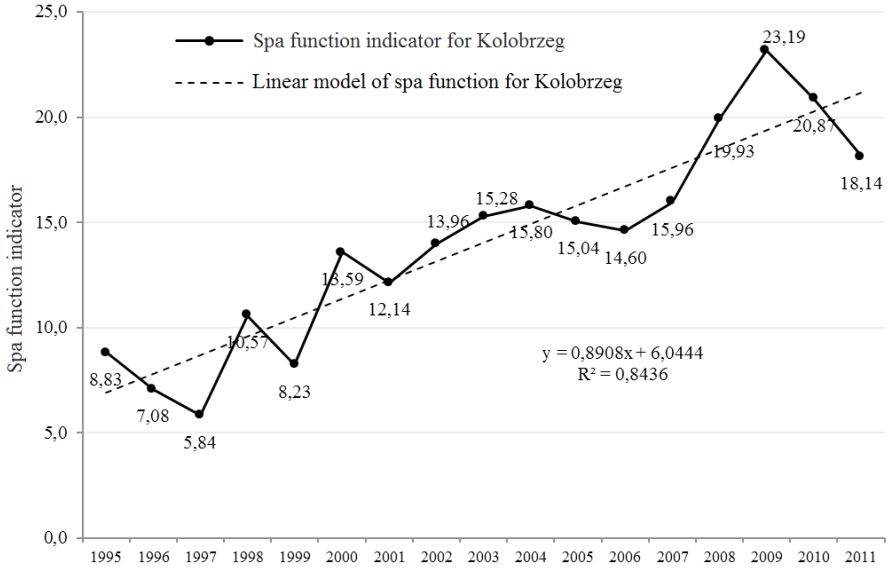


Fig. 4. Spa function Indicator of Kolobrzeg and its model
Source: own study.

Overall view of the development of this size indicates a relatively regular increase in take into account not only the amount of traffic the spa, but also the size of the potential and defines the spa function. On average, the indicator function of Kolobrzeg spa increases by 0.89 each year.

## Conclusion

Kolobrzeg is a unique city implementing the function of tourism. Its uniqueness lies not only in the tourist attractions, but it also performs many specific features of interest, one of the most important being a spa. There is no way not to notice Ciechocinek which is also noted as an area of best developed spa features. However, it should be noted that Ciechocinek is primarily a health resort, which is visited mainly by (because 76%) patients having to take spa treatment. Meanwhile, Kolobrzeg is visited mainly during holiday – by the sea oriented tourists, and spa visitors account for 44% of the population of people coming to this resort. It can also be noted that a higher degree of development

of the spa feature is not only Ciechocinek, but also Szczawnica and Naleczów. However, Kolobrzeg has a well -developed and documented potential of tourism and spa, which allows for the implementation of both traditional and modern spa functions (combining traditional treatments of naturopathy treatments type of spa & wellness).

The presented method of estimating functions of the spa is one of the proposals for measuring the complex phenomenon of the development of the tourist and therapeutic activity of the spa area. Although the impact of the traffic volume of the spa is the key here, however, it is balanced with other aspects of this phenomenon, such as defining spa features, and a number of ongoing therapeutic profiles, representing the determinant of the potential of natural medicine. The advantage of this approach to measure the function of the spa is to reduce the influence of the amount of tourist traffic in the spa to assess the level of development of the spa functions. Thus, the indicator function of the spa can specify the measurements made using tourist function indicators and point to the specific role of the area.

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Warszyńska J., *Funkcja turystyczna Karpat polskich*, "Folia Geographica. Series Geographica – Oeconomica", 1985, 18:1, pp. 79–104.

## WSKAŹNIK FUNKCJI UZDROWISKOWEJ JAKO MIARA ROZWOJU DZIAŁALNOŚCI TURYSTYCZNO-LECZNICZEJ W UZDROWISKU

**Streszczenie**

Praca prezentuje autorską koncepcję wskaźnika funkcji uzdrowiskowej. Konstrukcję wskaźnika oparto stopniu rozwoju działalności turystyczno-leczniczej, zdefiniowaniu funkcji uzdrowiskowej oraz wielkości potencjału uzdrowiskowego. Autor prezentuje również wynik zastosowania wskaźnika przedstawiając ranking gmin uzdrowiskowych oraz wyjaśnia rozwój uzdrowiska Kołobrzeg w latach 1995–2011 zgodnie z zastosowaną metodologią.

**Słowa kluczowe:** uzdrowisko, turystyka zdrowotna, turystyka uzdrowiskowa, wskaźnik