DYNAMICS OF SPA TOURISM STATISTICS IN SELECTED COUNTRIES OF CENTRAL AND EASTERN EUROPE

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ABSTRACT

Spas were attracting visitors since ancient times. Study aims to monitor the changes in spa tourism statistics in the period of 2010-2020 for the selected countries of Central and Eastern Europe (Croatia, Hungary, Serbia and Slovenia), with particular attention given to the average development rate (ADR) and average growth rate (AGR), and overnight stays and an average length of stay. The reference to the consequences of the Covid-19 pandemic on overnight stays and an average length of stay was discussed as well. Moreover, upon analysis of the existing tourism data for the period of 2010-2020, prediction of the post-pandemic period (until 2023-2025) was also implemented with the use of a linear model. In addition, using the broad criteria of a four-night stay as a minimum stay for medical treatments, Serbia has shown the characteristics of a medical spa, while Slovenia and Croatia could be characterized as "wellness medical", and finally Hungary was considered as a wellness spa destination.

Introduction

Humans, to a greater or lesser extent, were looking to find a way to take care of their health. Hence, travel to places with mineral and thermal springs was familiar to people from the earliest times. Spa tourism in Europe dates from ancient times, as the earliest reference to spas has been made in Ancient Greece and Rome (Huang et al., 2022). Ancient Greeks and Romans exploited the healing potential of spas and their natural environment to improve their overall well-being (Aluculesei et al., 2021). For example, in ancient Rome, 2000 years ago, the Baths of ancient Rome were perceived as leisure, social, tourism and pleasure phenomena. Acronym spa comes from the

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Latin phrase "salus per aquam" placing the care of body, mind and spirit in focus. The value of spas was even more pronounced nowadays, as thermo-mineral springs have remained to be a place of visitation and healing (both physical and mental) up to this day. Thus, according to World Spa Organization (n.d), "health and wellness market size worldwide was estimated at over 4.4 trillion U.S. dollars in 2019, a figure which is set to increase to over six trillion U.S. Dollars by 2025."

Spa tourism has evidenced an evolution from initial travel to a place with thermo-mineral water with a healing function focused on recovery or curation to modern spa centers turned and equipped with state of art medical equipment, not only directed to the healing process, yet prevention and with particular attention given to wellness services. With the outbreak of the Covid-19 pandemic, tourism on a global scale was exposed to restrictive measures such as lockdowns, travel bans, and restrictions on public gatherings leading to a loss of USD 1.3 trillion in export revenues and a 75% decrease in the number of international tourist arrivals (UNWTO, 2021). Therefore, the Covid-19 pandemic forced the productive sector of spa tourism to resituate itself (Pinos Navarrete & Shaw, 2021). Interestingly, despite the evident slowdown of all tourism activities globally, the pandemic crisis has also triggered novel opportunities for spas since the urge for both prevention and recovery of illness has boosted demand for spas and their treatments. Hence, spas' therapeutic role was emphasized not only during the pandemic crisis, yet in the post-recovery process as well (Aluculesei et al., 2021; Martínez-Moure & Saz-Peiró, 2021; Šenková et al., 2021). A large number of spas in Europe have shown socially responsible behavior by opening their facilities to infected patients and healthcare personnel to accelerate their recovery process (Antonelli & Donelli, 2020; Lakićević et al, 2023). To conclude, spa tourism, especially in countries with a long tradition of this specific form of tourism, was identified as an instrument to battle the challenges of a pandemic crisis on tourism in general (Šenková et al., 2021). Moreover, according to Rančić Demir et al. (2022) as a result of the pandemic international travel bans, tourists were persuaded to consider traveling to domestic destinations, especially those in spas with health and wellness services. Simultaneously, the influx of tourists, especially domestic to the spa destinations resulted in an accelerated trend when it comes to overnight stays. Taking into account the huge changes in post-modern society and the enormous effect of the Covid-19 pandemic on the spa tourism evolution, the contemporary evolution of prosperity, however, ignored market of Central and Eastern Europe was investigated. It will be interesting to acknowledge if the Covid-19 pandemic has changed considerably the spa tourism flows, especially those regarding overnight stays and the average length of the tourist stays.

Hence, the paper aims to examine the longitudinal changes in spa tourism phenomena (2010-2020), with particular reference to the overnight stays and average length of the tourists' stay in the selected spa tourism destinations in Central and Eastern Europe (Croatia, Hungary, Serbia and Slovenia), taking into account that investigated region has a long tradition of balneotherapy as an inseparable part of the region's cultural heritage (Varga, 2019). The choice of overnight stays and the average length of the

tourists' stay as indicative spa tourism indicators were based on the argument made by Šenková et al. (2021, p. 7) that „in spa tourism, the number of overnight stays is an important economic indicator, especially due to the specific requirements for a longer stay". The data was observed in the period starting from 2010 to 2020, with special reference given to the effects of the Covid-19 pandemic on spa tourism overnight stays and to a prediction of its growth for a post-pandemic period. The contribution of the paper is related to the fact that spa tourism data for selected Central and Eastern European countries were not systemized so tedious at one place in previous tourism literature, at the same time allowing us to understand the pandemic crisis effects on each of investigated markets and to acknowledge its particularities based on the criteria of an average length of stay. Finally, the study provided an opportunity to model the growth of this market (and countries within it) in the post-pandemic period.

Literature review

Spa tourism basics

Interest in health tourism has received increasing attention since the middle of the previous decade (Smith & Puczkó, 2015). Tourists' concern for improving health and quality of life is the leading motivating factor for traveling from one place to another (Tomka et al., 2015). Health tourism is a term that is commonly used by numerous researchers in tourism (Sarker et al., 2022). It appears as one of the oldest forms of tourism (Asadi & Daryaei, 2011), and represents a significant motivational driver for the movement of tourists at the beginning of the twentieth century (Hall, 2011). Travel and health are interrelated concepts, as tourism activities promote the physical, mental and emotional state of travelers/tourists (Yoo et al., 2015). Although many governments use health tourism as a synonym for medical tourism, a clear distinction should be made between the concepts that belong to this form of tourism (Smith & Puczkó, 2013). Health tourism includes sub-sectors such as spa, wellness and medical tourism (Manna et al., 2020; Rodrigues et al 2017; Smith & Puczkó, 2013).

Medical tourism, as a branch of health tourism, involves the travel of patients abroad in search of medical care, which includes optional and special treatments, major/minor operations, as well as routine controls (Garcia-Altes, 2005). *Wellness tourism* involves "tourists in good health who are looking for treatments that will enable them to maintain that status" (Unković & Zečević, 2000, p. 295). The concept of health is often associated with wellness since health tourism is aimed at promoting a healthy lifestyle and opportunities for recreation and general well-being (Pessot et al., 2021). Today, wellness experts recognize the following trends, such as: "dirty wellness" - the health of the world's soil and the impact of soil exposure on human health; urban baths and wellness playgrounds; innovative technology (devices that collect data for a wide range of individual health conditions); wellness travel - welcoming travelers ready for post-pandemic adventure; a healthier lifestyle for the elderly; the rise to the wellness metaverse (Global wellness summit, 2022).

The spa is one of the sub-sectors of health tourism that is located between the medical and wellness sectors, depending on the purpose and type of treatment received when visiting spas (Smith & Puczkó, 2009). According to the Short Dictionary of Tourism (cited in Šenková et al., 2021, p. 3) spa tourism is defined as "a type of tourism focused on health-preventive and therapeutic activities under professional supervision in leisure time". In Europe, spas are commonly traditional and used for medical purposes (Jakubíková et al., 2019), but over time visitors also come for the natural environment, social contacts and cultural experiences (Šenková et al., 2021). The current social role of spas, in the form of health care and health prevention, is undergoing significant changes (Szromek & Naramski, 2019). People are turning more toward healthy lifestyles and trying to adapt these elements to their life, as well as to integrate the wellness component into it (Buzsik et al., 2015). The historical evolution of spas could evidence different phases (medical, wellness), while nowadays, spa tourism encircles additional experiences such as aromatherapy, yoga, pilates, etc. (Travis, 2011). Many spas have increased their revenues due to increased demand for wellness tourism and increased spending on wellness and wellness-related items (Rodrigues et al., 2022). Spa providers must adapt to the changing wants and needs of service users, and continue to improve the spa experience (Smith & Puczkó, 2009). Some of the challenges include changes that include: changing the spa concept - from enjoyment to wellness; monitoring changes regarding the profile of consumers in spas; spa facilities directed not only for women but also for men, as well as for all age groups of people; providing a more comprehensive range of treatments and services; and providing information to potential consumers in line with technological progress (Smith & Puczkó, 2009). Over time, a mixture of medical spa and wellness has emerged in the form of "medical wellness". European Spa Association defines medical wellness as "medical diagnostics and various treatment techniques with elements of wellness that generate the holistic improvement of health, well-being, and subjective perceptions of health and prevention" (EuropeSpa, 2022, p. 3).

Smith and Dryglas (2021, p. 67) argue that "many traditional medical spas, especially in Central and Eastern Europe, were originally funded or subsidized by national governments because they provided health services for residents and domestic tourists. However, in recent years, many spas have been underfunded and were expected to attract guests on the free market, including international tourists. This represents a major challenge, as international tourists may expect wellness rather than medical facilities or higher quality facilities than the spas can currently afford to offer". Some projects, for example, WellSpaV4 (Czech Republic, Hungary, Poland and Slovakia) examined the mixture of wellness services and spa tourism, particularly in the context of traditional (medical) spas (Šenková et al., 2021).

Spa tourism-changes in the demand

Modern civilization has brought substantial changes to everyday life. A hectic pace of life has altered daily routines and reduced available leisure time leading to stress and

eventually growth of the stress-induced illness. Globally, it is an evident trend of the aging population so the promotion of healthy lifestyles wellness and spa tourism has expanded rapidly in the last few years (Dillette et al., 2020). The intensive development of health tourism implies the differentiation and continuous adaptation of certain products to changes in global demand. Demand trends are changing, largely driven by demographic changes (Buzsik et al., 2015). Satisfying "health tourists" is a challenging task that requires constant effort (Sarker et al., 2022). Tourists expect a mix of health treatments, such as conventional and alternative health treatments as part of wellness tourism to improve their health and well-being (Majeed & Kim, 2022). The economic growth worldwide combined with increased life expectancy, are very significant drivers of demand for some forms of health tourism, particularly spas (Yuan et al., 2017).

Nowadays, more and more people are looking for healthier lifestyle options that could be practiced within the spas (Dryglas & Rozycki, 2017). Thus, companies worldwide have realized the benefits of using spa retreats in reducing workplace stress and sickness-related absenteeism (Smith & Puczko, 2015). Moreover, spas were not exclusively recognized as places of health recuperation, yet as wellness-oriented destinations focused on beauty and relaxation treatments (Dimitrovski & Todorović, 2015). Modern-day spas reflect the notion of "lifelong wellness", a mixture of "complementary and alternative therapies and medicines" at the crossroad of beauty, relaxation and medical approaches (Smith & Puczko, 2015, p. 217). These novel treatments have resulted in higher demand for novel in comparison to traditional spa services, particularly in the Balkan countries (Sziva et al., 2017), minimizing the importance of traditional medical features in spas in contrast to preventive aspects (Pinos Navarrete & Shaw, 2021). Conversely, as an outcome of the pandemic, Aluculesei et al. (2021) argue that over time tourists have started to prefer the medical spa as a result of the healthy lifestyle trend. Unfortunately, there is a limited number of studies that monitor the changes in the tourism demand for spa tourism in selected destinations within Central and Eastern Europe, regardless of its abundant historical spa heritage.

According to Smith and Puczko (2015) profile and motivations of thermal spa tourists in Central and Eastern Europe is considerably different from tourists visiting leisure or beauty spas. However, in parallel a process of "spaization" was acknowledged, blurring the boundary between traditional spas directed to the use of thermal and mineral waters and emerging spas using non-mineral water (Smith & Puczko, 2010). However, with the outbreak of the Covid-19 pandemic, medical facilities in spas have once again gained importance, especially in the recovery and post-recovery process of infectious diseases. Hence, Rančić Demir et al. (2022) perceive the coronavirus pandemic as an opportunity for "transformative resilience" of spa offer. Conversely, Pinos Navarrete and Shaw (2021) argued that during the pandemic spa business activity was significantly reduced, while some of the spas were temporarily closed.

It is interesting to note that recreational spa's economic benefits should come from the ampleness of shorter stays driven by wellness issues, while a stable influx of tourists in medical spas comes as a consequence of the recognition of medical spas within

European healthcare systems (Aluculesei et al., 2021). Initially, within the region of Central Europe, medical spa stays were from 21 or 28 days paid by health insurance companies (Derco, 2020), while Rodrıguez Miguez (2010) argues that traditional medical spa treatments require a longer stay of at least 11 continuous days, in contrast to wellness treatments that commonly last from several minutes to hours, not more than several days. In the meanwhile, some medical facilities have offered shorter (minimum of four nights) effective medical treatments (Šenková et al., 2021). Thus, this value could be used as an optimal threshold for the differentiation of the spa destination profile.

In the case of Slovenia, modern wellness treatments were attractive due to the "mutual complementarity of health and tourism functions" (Rančić Demir et al., 2022, p. 287). In Serbia, health or rehabilitation spa tourism financed by the state plays the most important role for domestic tourists, otherwise, most of them would not be able to afford a wellness and spa vacation. Moreover, both Serbia and Hungary support domestic spa tourism through the use of holiday vouchers. In Hungary, these vouchers were subsided by spas and/or reimbursed by the National Health Insurance Fund of Hungary (Surugiu et al., 2021). Thus, insight into the number of overnight stays and the average length of the stay would provide insight into the market dynamics, of importance for predicting future growth and the type of spa destination.

Methodology

The study uses a quantitative approach to analyzing secondary data obtained from the official websites of the statistical offices of the analyzed countries. The secondary data was collected for the second decade of the 21st century (2010-2020), trying to acknowledge the contemporary dynamics of the spa tourism phenomena. Moreover, an outbreak of the health crisis (covid-19 pandemic) was also acknowledged since the last observed year taken for the analysis was a year of the Covid-19 pandemic. Neighboring countries in the region of Central and Eastern Europe (Serbia, Croatia, Slovenia and Hungary) were considered, due to the long tradition of chosen countries in the context of spa tourism, and its distinctive spa tourism evolution over the years, particularly after the Second World War (Paunović, 2013). The initial phase of the development of spa tourism in investigated countries comes as a result of the unique economic and political environment (socialism), advancing the medical spa concept as state planned project. With the beginning of the transition process towards capitalism in Hungary, the wellness aspects were becoming more and more pronounced within their spa offer.

The data included most significant tourism statistics aspects such as those more general on a national level (Total number of tourists visits and overnight stays) and spa tourism destination specific (Total number of spa visits, Total number of spa overnight stays and The average length of stay in spas). Comparative analysis was made between the proposed destination, with a particular focus on the overnight stays and average length of the stay in spas following previous literature in the field (Šenková et al., 2021). In addition, longitudinal analysis was deployed to monitor the changes between the selected spa destination from 2010 to 2022, and with a prediction to 2025.

The study implemented the following quantitative analyses. To acknowledge the contemporary dynamics of spa tourism development, mathematical formulas assessing both average development rate (ADR) and average growth rate (AGR) were assessed. Moreover, a mathematical linear model was conceptualized to depict the dynamics of the number of overnight stays in spas within the observed period and also to predict its growth in the forthcoming years. Finally, an evaluation of the type of „spa tourism" for each of the investigated destinations grounded on the comparative analysis of the average length of stay using a criterion of minimal length for effective medical treatment in spas (four nights according to Šenková et al., 2021) between chosen spa destinations was implemented.

Results

The tables (Table 1 to Table 4) systemized the statistical data regarding spa visitation for the previous decade (2010-2020), with both national and (spa) destination data in the selected countries of Central and Eastern Europe region (Serbia, Hungary, Croatia and Slovenia). Table 1 provides insight into Serbia's spa data statistics.

Table 1. Serbia tourism and spa statistics (2010-2020)

Year	Total number of overnights stays	Total number of spa visits	Total number of spa overnight stays	The average length of stay in spas	Share of spa overnight stays to the total number of overnight stays in Serbia %
2010.	6.413.515	386.499	1.986.735	5,14	30,98
2011.	6.644.738	375.473	2.308.435	6,15	34,74
2012.	6.484.702	347.192	2.035.938	5,86	31,40
2013.	6.567.460	405.768	2.134.497	5,26	33,00
2014.	6.086.275	386.345	1.852.036	4,79	30,43
2015.	6.651.852	427.456	1.854.582	4,34	27,88
2016.	7.599.739	477.102	2.085.044	4,37	27,44
2017.	8.325.144	519.151	2.227.945	4,29	26,76
2018.	9.336.103	596.884	2.542.391	4,26	27,23
2019.	10.073.299	670.044	2.781.627	4,15	27,61
2020.	6.201.290	522.947	2.184.602	4,18	35,23

Source: Statistical Office of the Republic of Serbia

Table 2 systemized tourism and spa statistics for Hungary from 2010 to 2020.

Table 2. Hungary tourism and spa statistics (2010-2020)

Year	Total number of overnights stays	Total number of spa visits	Total number of spa overnight stays	The average length of stay in spas	Share of spa overnight stays to the total number of overnight stays in Hungary %
2010.	104.700.000	29.489.000	33.913.000	1,15	32,39
2011.	102.700.000	32.023.000	36.186,000	1,13	35,23
2012.	102.000.000	35.439.000	40.257,000	1,14	39,47
2013.	105.500.000	38.394.000	42.426,000	1,11	40,21
2014.	110.000.000	37.911.000	44.591,000	1,18	40,54
2015.	107.000.000	40.241.000	47.618,000	1,18	44,50
2016.	107.000.000	41.096.000	51.011,000	1,24	47,67
2017.	107.200.000	41.363.000	51.704.000	1,25	48,23
2018.	105.700.000	41.777.000	53.057.000	1,27	50,19
2019.	100.700.000	42.051.000	54.246.000	1,29	53,86
2020.	62.800.000	19.147.000	39.826.000	2,08	63,42

Source: Hungarian Central Statistical Office

Table 3 systemized the tourism and spa statistics for Slovenia for the previous decade.

Table 3. Slovenia tourism and spa statistics (2010-2020)

Year	Total number of overnights stays	Total number of spa visits	Total number of spa overnight stays	The average length of stay in spas	Share of spa overnight stays to the total number of overnight stays in Slovenia %
2010.	9.883.920	654.056	2.752.718	4,21	27,85
2011.	10.413.012	680.910	2.865.128	4,21	27,51
2012.	10.604.352	794.029	3.255.520	4,10	30,70
2013.	10.708.408	801.857	3.175.355	3,80	29,65
2014.	10.738.766	811.927	2.998.959	3,69	27,93
2015.	11.653.764	850.126	3.035.654	3,57	26,05
2016.	12.647.876	892.048	3.165.561	3,45	24,75

Year	Total number of overnights stays	Total number of spa visits	Total number of spa overnight stays	The average length of stay in spas	Share of spa overnight stays to the total number of overnight stays in Slovenia %
2017.	14.208.545	944.738	3.310.184	3,50	23,30
2018.	15.694.705	1.112.921	3.642.651	3,27	23,21
2019.	15.775.331	1.193.346	3.701.669	3,10	23,46
2020.	9.204.374	630.408	2.250.228	3,57	24,45

Source: The Statistical Office of the Republic of Slovenia

Finally, Table 4 systemized the tourism and spa statistics for Croatia within the observed period.

Table 4. Croatia tourism and spa statistics (2010-2020)

Year	Total number of overnights stays	Total number of spa visits	Total number of spa overnight stays	The average length of stay in spas	Share of spa overnight stays to the total number of overnight stays in Croatia %
2010.	56.217.000	107.000	363.000	3,39	0,65
2011.	60.110.000	110.000	365.000	3,32	0,61
2012.	62.507.000	106.000	357.000	3,37	0,57
2013.	64.617.000	118.000	358.000	3,03	0,55
2014.	66.270.000	129.000	397.000	3,08	0,60
2015.	71.437.000	148.000	436.000	2,96	0,61
2016.	77.918.855	172.000	523.000	3,04	0,67
2017.	86.200.201	201.000	590.000	2,93	0,68
2018.	89.651.789	207.000	612.000	2,96	0,68
2019.	91.242.931	218.000	625.000	2,87	0,68
2020.	40.794.455	140.000	346.000	2,47	0,68

Source: The Croatian Bureau of Statistics

Taking into account the previous tables (Tables 1 to 4), it could be concluded that the number of overnight stays in spas is the highest in Hungary followed by Slovenia, and Serbia, while the lowest is in Croatia. However, taking into account the number of total inhabitants and the total number of spa tourists who visited examined tourist destination, it could be argued that the largest share of overnight stays and visits to

spas belongs to Hungary (about 75%), followed by Slovenia (20%), Serbia (17%) and lastly for Croatia (1%). The explanation for this finding lies in the fact that Serbia and Hungary were not seaside destinations, while Croatia has invested all the efforts in tourism promotion of their Adriatic coast. On another hand, Slovenia has also well-renowned seaside destinations, and, at the same time, it allocated large funds for the development of spa tourism. Table 5 showed the share of overnight stays for peak years within the investigated period of time.

Table 5. Share of an overnight stay in spas in contrast to the total number of overnight stays in the country

Country	The maximum value of a share of spa overnight stays within the total number of overnight stays	Year
Hungary	63,42	2020
Serbia	35,23	2020
Slovenia	30,70	2012
Croatia	0,68	2019, 2020

Source: Authors' calculations

Taking into account the dynamics of spa tourism development, the average development rate (ADR) and average growth rate (AGR) were assessed. The above indicators define the trend of spa tourism development in each destination. The average development rate is obtained based on the following formula

ADR = (Yn – Y1)^(1/(n-1).

In the previous formula, Yn stands for the number of overnight stays in the last year of the observed period (2020) and Y1 is the number of overnight stays in the first year of the observed period (2010). The average growth rate is then calculated according to the formula

AGR = ADR-1.

The number of observed years is n=11. Table 6 present the results for ADR and AGR for each of the investigated destinations.

Table 6. Average development rate (ADR) and average growth rate (AGR) for investigated destinations over 11 years

Country	ADR	AGR
Serbia	1,009	- 0,009
Hungary	1,016	- 0,016
Slovenia	0,98	0,02
Croatia	0,995	0,005

Source: Authors' calculations

Table 6 indicates a decrease in average growth rate (AGR) for Hungary and Serbia mostly as a result of the pandemic outbreak in 2020, however, in the terms of average development rate (ADR) increase in the number of tourists in the spas and their number of overnight stays in the same countries was recognized.

Moreover, a mathematical model capable to depict the dynamics of the number of overnight stays in spas, to predict its growth in the forthcoming years was proposed. The study proposed a linear model due to its applicability in the study context, and as a result of researchers' awareness of possible error within the calculation and possible model adjustments to resolve this specific issue.

The annual number of overnight stays was defined by the following formula

$Yt = b0 + b1 * x$, where

$b0 = \sum Yi /n$,

$b1 = \sum x * Y / \sum x2$.

Coefficient b1 is the slope of the true linear distribution and shows an increase in the number of overnight stays, and b0 is the average number of overnight stays for the observed period of 11 years. Table 7 showed the results of a linear model for spas in Serbia over the examined period of time.

Table 7. Results for the linear model of overnight stays in spas in Serbia

Year	X	Number of overnight stays in spas (000 000) Y	XY	X^2
2010	-5	1.986	-9.93	25
2011	-4	2.308	-9.232	16
2012	-3	2.036	-6.108	9
2013	-2	2.134	-4.268	4
2014	-1	1.852	-1.852	1
2015	0	1.854	0	0
2016	1	2.085	2.085	1
2017	2	2.228	4.456	4
2018	3	2.542	7.626	9
2019	4	2.781	11.124	16
2020	5	2.185	10.925	25
	0	23.991	4.826	110

Source: Authors' calculations

$b_0 = 2,181$

$b_1 = 0,039$

$Y_t = 2,181 + 0,039 * x$

Table 8 showed the results of a linear model for spas in Hungary over the examined period.

Table 8. Results for the linear model of overnight stays in spas in Hungary

Year	X	Number of overnight stays in spas (000 000) Y	XY	X^2
2010	-5	33.913	-169.565	25
2011	-4	36.186	-144.744	16
2012	-3	40.257	-120.771	9
2013	-2	42.426	-84.852	4
2014	-1	44.591	-44.591	1
2015	0	47.618	0	0
2016	1	51.011	51.011	1
2017	2	51.704	103.408	4
2018	3	53.057	159.171	9
2019	4	54.246	216.984	16
2020	5	39.826	199.13	25
	0	494.835	165.181	110

Source: Authors' calculations

$b_0 = 44,985$

$b_1 = 1,502$

$Y_t = 44,985 + 1,502 * x$

Table 9 showed the results of a linear model for spas in Slovenia over the examined period.

Table 9. Results for the linear model of overnight stays in spas in Slovenia

Year	X	Number of overnight stays in spas (000 000) Y	XY	X^2
2010	-5	2.752	-13.76	25
2011	-4	2.865	-11.46	16
2012	-3	3.255	-9.765	9
2013	-2	3.175	-6.35	4

Year	X	Number of overnight stays in spas (000 000) Y	XY	X^2
2014	-1	2.998	-2.998	1
2015	0	3.035	0	0
2016	1	3.165	3.165	1
2017	2	3.31	6.62	4
2018	3	3.642	10.926	9
2019	4	3.701	14.804	16
2020	5	2.25	11.25	25
	0	34.148	2.432	110

Source: Authors' calculations

$b_0 = 3,104$

$b_1 = 1,502$

$Y_t = 3,104 + 0,022 * x$

Table 10 showed the results of a linear model for spas in Croatia over the examined period.

Table 10. Results for the linear model of overnight stays in spas in Croatia

Year	X	Number of overnight stays in spas (000 000) Y	XY	X^2
2010	-5	0.363	-1.815	25
2011	-4	0.365	-1.46	16
2012	-3	0.357	-1.071	9
2013	-2	0.358	-0.716	4
2014	-1	0.397	-0.397	1
2015	0	0.436	0	0
2016	1	0.523	0.523	1
2017	2	0.59	1.18	4
2018	3	0.612	1.836	9
2019	4	0.625	2.5	16
2020	5	0.346	1.73	25
	0	4.972	2.31	110

Source: Authors' calculations

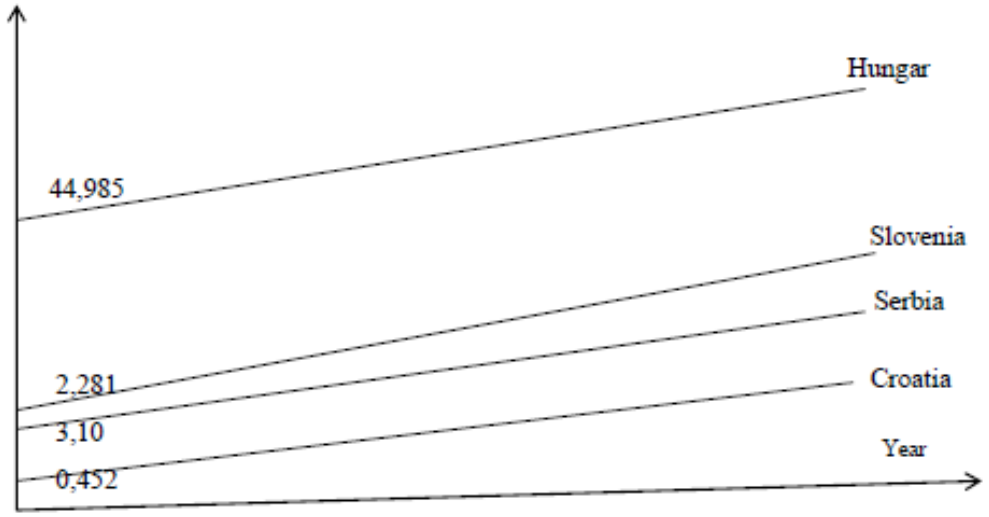
$b_0 = 0{,}452$

$b_1 = 0.021$

$Y_t = 0{,}452 + 0.021 * x$

Based on mathematical models of linear distribution, it could be concluded that trends in the number of overnight stays for all of the observed countries (Serbia, Hungary, Slovenia and Croatia) are increasing over the years.

Figure 1. Identified trends within the proposed linear model for investigated destinations over the observed period (2010-2025)



Source: Authors' calculations

The main advantage of the proposed linear model is the possibility of predicting the number of overnight stays in the forthcoming years. Namely, the values of h change in the displayed tables from -5 to 5, acknowledging the study time-frame starting from 2010 to 2020. If the Yt value is calculated for h=8, the forecasted number of overnight stays in 2023 is obtained, for h=9 the forecasted number of overnight stays in 2024, etc. For individual countries, the predicted values of the number of overnight stays are given in the following overview. Estimated number of overnight stays for individual countries:

Serbia

For h=8, i.e. 2023, Yt=2.493 million number of overnight stays is predicted,

For h=9, i.e. 2024, Yt=2.532 million number of overnight stays is predicted,

Therefore, in 2024, more than 2,500,000 overnight stays in spas are expected in Serbia, which represents an excellent result in the context of the development of spa tourism in Serbia.

Hungary

For h=8, i.e. the year 2023, Yt=57 million number of overnight stays is predicted,

For h=9, i.e. 2024, it is predicted that Yt=58.5 million overnight stays,

As can be seen from Figure 1 and based on the obtained values, Hungary would eventually also records a considerable increase in the number of tourists in its spas in the forthcoming period.

Slovenia

For h=8, i.e. 2023, it is predicted that Yt=3.28 million overnight stays,

For h=9, i.e. 2024, it is predicted that Yt=3.3 million overnight stays,

In 2024, 3,300,000 overnight stays are expected in Slovenia, which in absolute terms is more than in Serbia. Moreover, taking into account the fact that Slovenia has 2.5 times less population in comparison to Serbia, it can be concluded spa tourism in Slovenia would continue its boom in the forthcoming years.

Croatia

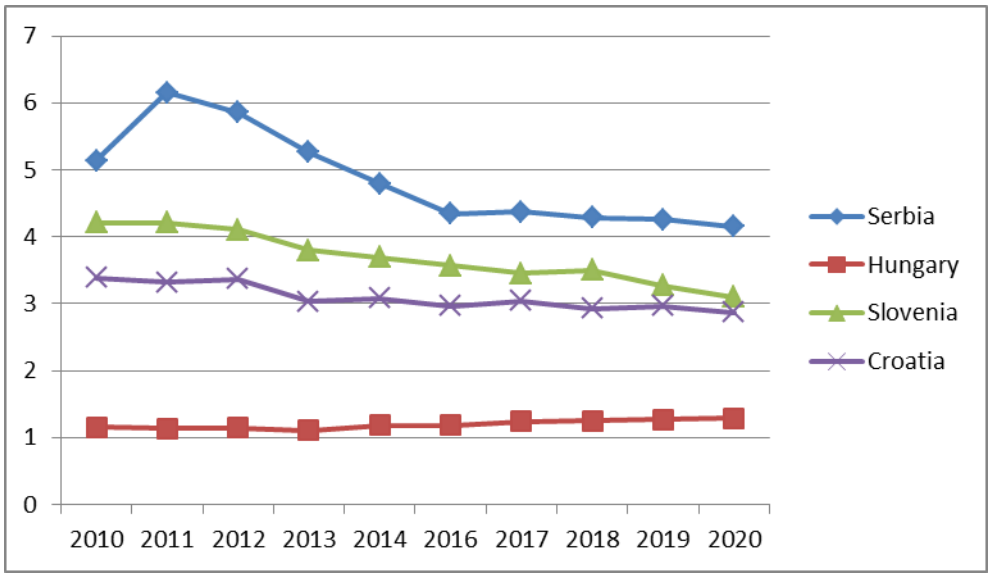
For h=8, i.e. 2023, Yt=0.62 million number of overnight stays is predicted,

For h=9, i.e. 2024, Yt=0.641 million number of overnight stays is predicted,

As mentioned earlier, due to the Adriatic coast, spa tourism in Croatia has a significantly lower number of overnight stays, which is compensated by tourist visitation to seaside destinations, generating considerably higher tourism income for Croatia in comparison to Serbia and Slovenia.

Finally, each of the investigated destinations' average length of stay in spas was further examined to acknowledge the evolution of spa tourism regarding the destination offers (Figure 2). According to Šenková et al. (2021), a criterion of four nights for the minimal length of stay for effective medical treatment in spas was used. Based on the predetermined threshold, Serbia was perceived as a medical spa destination close to the threshold with the end of the observed period and an outbreak of the pandemic, while Slovenia has initially been profiled as a medical spa at the beginning of the previous decade, however, nowadays with an average of 3 nights per stay belong to a type of "medical wellness" destination. Both Hungary and Croatia were well above the predetermined threshold, therefore they are perceived as wellness spa destinations, which is particularly obvious in the case of Hungary. It is interesting to note that Hungary was the sole destination that increased the length of stay with the outbreak of a pandemic, suggesting its re-definition towards richer tourism offer that might secure longer stays, presumably as a combination of wellness and medical features, or as it has been above emphasized in the form of "medical wellness" (EuropeSpa, 2022).

Figure 2. Dynamics of an average length of stay in spas in the period from 2010 to 2020 in the observed destinations



Source: Authors' calculations

Discussion and concluding remarks

Countries in Central and Eastern Europe selected for the study (Serbia, Hungary, Slovenia and Croatia) experienced increased growth in spa tourism over the observed period (2010-2019). With the outbreak of the Covid-19 pandemic, chosen countries had more or fewer difficulties. For example, those that are continental such as Serbia and Hungary have exploited this health crisis to accelerate the number of overnight stays, in contrast to Slovenia and Croatia. Moreover, favoring domestic tourism and extended stays in spas was found to be a powerful instrument to battle the worldwide challenges of travel bans, demonstrated especially in the context of the number of overnight stays in Serbia and Hungary in contrast to the initial year of evidence (2010). The pandemic resilience of spa tourism was also noted for Hungary (63,42%) and Serbia (35,23%) concerning the maximum value of a share of spa overnight stays within the total number of overnight stays shown in these destinations. Moreover, Serbia and Hungary showed successful results also in the context of the Average development rate (ADR). The proposed linear model suggests that there is an increasing growth of one of the main criteria regarding spa tourism success, the total number of overnight stays as previously discussed in the Šenková et al. (2021) study.

Finally, concerning the spa destination typology average length of stay was assessed to get insight into the dominant type of services and accompanying experience provided at the spa destination. It is interesting that the previously discussed process of "spaization" is related to blurring the boundary between traditional spas and emerging spas (Smith

& Puczko, 2010) or medical and wellness perspective. It is also in the line with the lifestyle expression of post-modern society, such as, among others aromatherapy, yoga, and pilates with preference given to the well-being perspective (Travis, 2011). Serbia was positioned as more oriented towards classical medical spa treatments, commonly used by health care users mainly within the recovery process. On another end of the spa destination offer-related typology Hungary was positioned, with a minimal length of stay and thus, a significant focus on prevention and wellness in the form of "lifelong wellness" as a mixture of beauty, relaxation and medical approaches (Smith & Puczko, 2015). It is interesting to note that Hungary used the "opportunity" for "transformative resilience" of spa offers instigated by the pandemic as argued by Rančić Demir et al. (2022). Slovenia and Croatia were found to be in-between medical spas and wellness, closest to what has been previously stated as "medical wellness" (EuropeSpa, 2022).

The practical implications of the study were mostly of interest to destination managers and marketers. The destination should monitor changes on the demand side, and provide services and experience according to the identified trends. It is an evident process of "spaization" (Smith & Puczko, 2010), with a balanced approach of spas that combine both medical and wellness aspects. This mixture was more pronounced with the outbreak of a pandemic, as the health crisis has highlighted both the urge for wellness and prevention approach as much as it has been noted from a medical perspective based on recovery and rehabilitation. Study findings provide valuable insight into the recent spa tourism evolution, its response to the global health crisis and the projection of its growth in the near future.

The limitation of the study comes as a result of the non-inclusion of other destinations of the investigated region, particularly, neighboring countries of Romania and Bulgaria, and other countries from former Yugoslavia (Montenegro, North Macedonia and Bosnia and Herzegovina). Future research should consider the additional statistics categories, especially related to the distinction between domestic and international tourists.

Conflict of interests

The authors declare no conflict of interest.

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